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AMSTRAD COMPUTER USER

ACU

FEBRUARY 1991

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THE MAGAZINE FOR THE AMSTRAD 464, 6128 & GX4000 CONSOLE — OFFICIAL



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Try out ACU's Amazing American Football type-in to celebrate this year's Superbowl.

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Power your CPC to the limits as Dr Dorn takes an EXCLUSIVE look at the sensational new German Hard Disc.

HACK ATTACK

Five excellent role-playing board games must be won inside.

GOLDEN AXE

Join in mortal combat with Death Adder in Virgin's superb arcade-style adventure

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Take the role of Marvels' favourite character - Spider Man - in a highly addictive race against time to save Mary Jane from the hands of Mysterio.

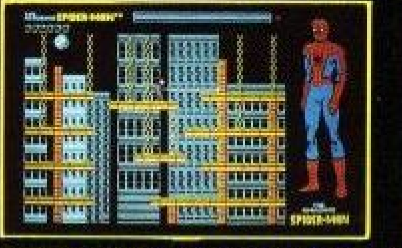
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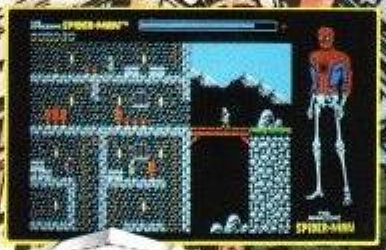


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"GET YOUR TEETH INTO THIS GAME AND YOU'LL SOON FIND YOUR SELF WELL AND TRULY ADDICTED!" C + VG 87%







SCREEN SHOTS ARE FROM THE AMIGA VERSION

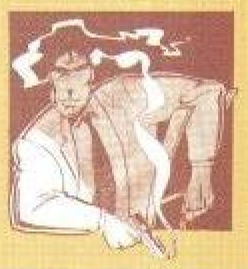
THE AMAZING SPIDER-MAN WILL HAVE YOU CLIMBING UP THE WALL

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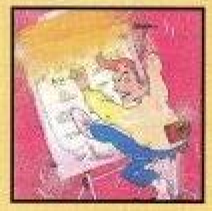
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REGULARS





FEATURES



DATEL ELECTRONICS



dk'tronics

64K AND 256K MEMORY EXPANSION

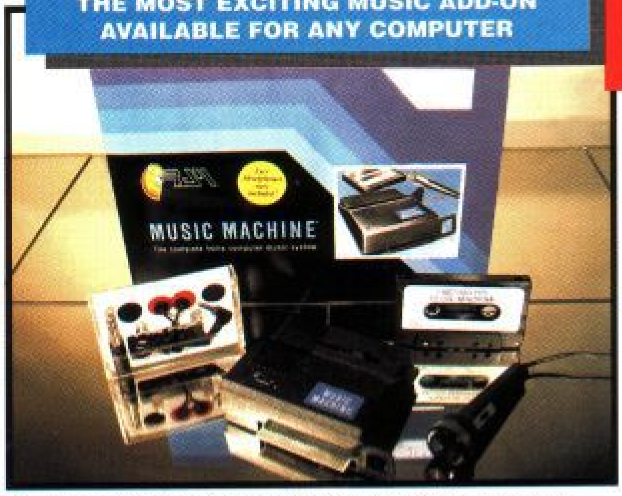
- Simple plug in memory expansion gives instant extra memory.
- Features bank switching software for easy use by the programmer or for use as a data storage area.
- The software also features some extra BASIC commands.
- 64K unit expands 464 to 128K. The 256K unit takes your 6128 to 320K!!
- 64K unit brings 464 up to CPC 6128 memory configuration making a much larger software base available. Will work straight off with many programs designed for this unit (including OCP Art Studio - see Ad.).
- Ideal for use with the CPM 2.2 etc.
- Bank switching done automatically by software (cassette 464 - disk 6128).

ONLY £49.99 64K FOR 464

ONLY £99.99

256K FOR 464 OR 6128 (PLEASE STATE)

THE RAM MUSIC MACHINE IS PROBABLY THE MOST EXCITING MUSIC ADD-ON AVAILABLE FOR ANY COMPUTER



- It's a full sound sampling system allowing any sound to be recorded digitally into the computer RAM. Once stored, the sound can be replayed at different pitches with many varying effects.

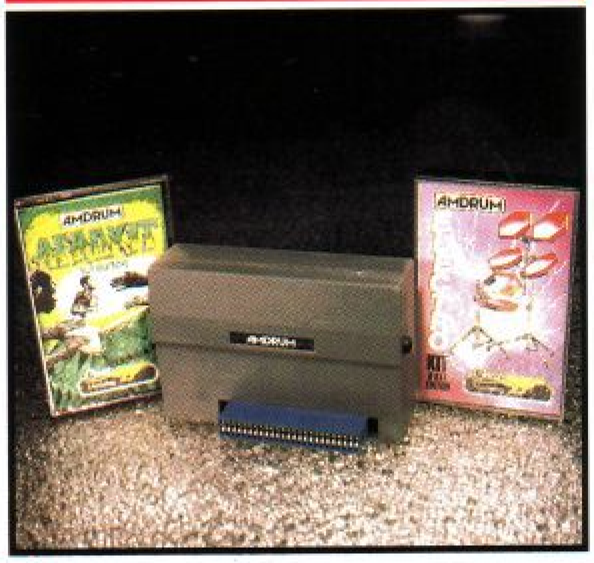
RAM music machine

- It's an echo chamber & digital delay line. Create some very interesting effects.
- It's a two voice music/sound synth.
- The Music Machine can also be used as a drum machine - eight drum sounds are already provided for you, but you can easily produce more of your own.
- The extremely powerful software allows you to compose tunes from individual bars of music. You can edit your creations on screen & Save/Load sounds, instruments & rhythms.
- Fully MIDI compatible. The Ram Music Machine supports full MIDI In, MIDI Out & MIDI Thru.
- Output through your Hi-Fi or Headphones. Comes complete with microphone.
- Use a full size MIDI keyboard to play the Music Machine.
- Sounds produced by the Music Machine can be mixed with a MIDI synthesiser's own sounds.
- On screen Sound Editor can produce MIDI data from your own compositions.
- Various sampled sounds are provided in order to get you going.
- No other product can offer so much in one unit - it's the TOTAL SOLUTION!!

ONLY £49.99

FOR THE BEST MUSIC ADD-ON AVAILABLE FOR THE AMSTRAD

AMDRUM



- **Now you can turn your Amstrad into a real Digital Drum Machine.**
- AmDrum from Cheetah Marketing is a superb plug in device that produces "real" drum sounds via its unique digital system.
- On screen menu driven drum kit makes composing drum sounds easy for anyone to do!
- Just plug the output into your Hi-Fi, cassette player, etc. and that's it - your Amstrad is a drum kit!!
- Comes complete with DrumKit Sound plus extra DrumKit and Kit Editor Program (worth £9.99) absolutely FREE!!

ONLY £14.99

SPEECH SYNTHESISER & STEREO SOUND BOOSTER

- This easy to use Speech Synthesiser includes a powerful Stereo Amplifier and two pod speakers which are an enormous improvement on the sound supplied by the internal mono speaker.
- Speech output is monorial but directed to both speakers. Booster gives stereo to computer internal sound output.
- Using the SPO/256 Speech Chip the unit has almost infinite vocabulary.
- Text to speech software is provided in ROM to make speech output simplicity itself.
- Voicing is transparent to the user and the computer can carry on with other program tasks as necessary.



ONLY £29.99

464 OR 6128 (Please state which)

dk'tronics

LIGHTPEN/GRAPHICS SYSTEM

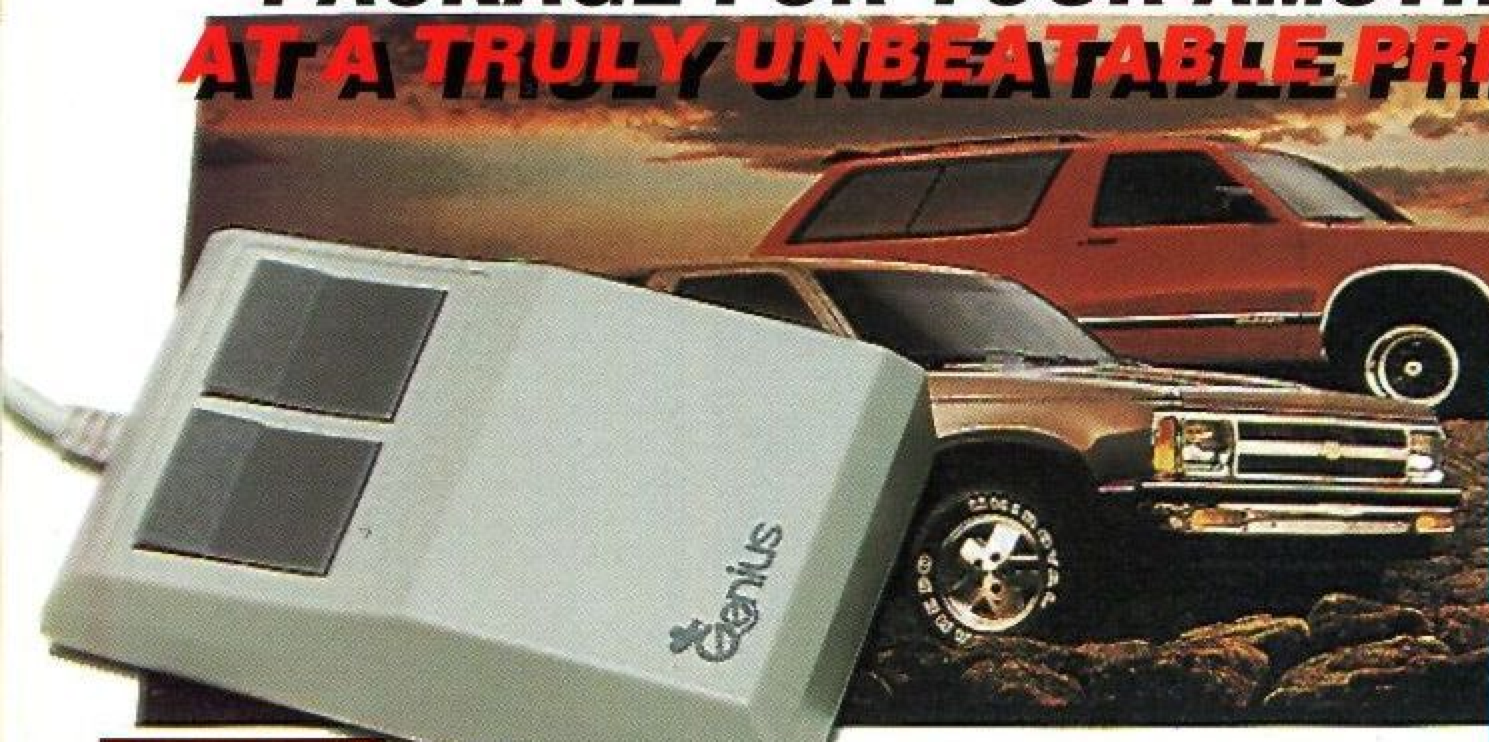


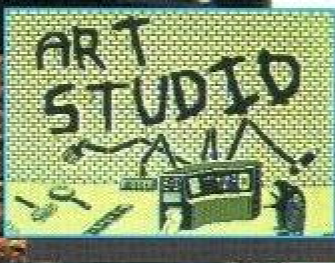
- Complete Lightpen and graphics system lets you create a whole range of effects on screen.
- It can magnify, shrink, colour fill and create circles, rectangles, lines and curves.
- Pictures can be edited at pixel level using a scratch pad which is magnified to a full screen.
- Picture storage and retrieval, and a pen calibration feature.
- Printer dump utilities for Epson/Amstrad printers supplied (on cassette).
- Complete package - no more to buy.

ONLY £14.99 CASSETTE

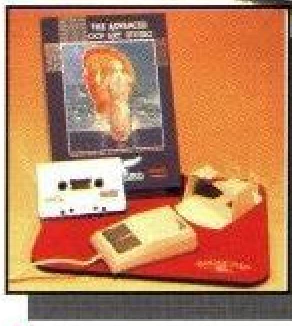
OR £24.99 WITH SOFTWARE ON ROM - NOTHING TO LOAD 464 OR 6128 (Please state which)

NOW A TOTAL MOUSE/GRAPHICS PACKAGE FOR YOUR AMSTRAD AT A TRULY UNBEATABLE PRICE!!









TAPE OR DISK FOR 464 OR 6128 (PLEASE STATE WHICH REQUIRED) N.B. 464 NEEDS DK'TRONICS 64K RAM PACK

Genius Mouse COMPLETE WITH OCP ADVANCED ART STUDIO

- **Genius Mouse is a high resolution two button mouse featuring optical counting, teflon guides, microswitches, rubber coated ball and high quality interface.**
- **When combined with OCP Advanced Art Studio this graphics package is quite simply the best system available. The features are unmatched...**
- Create an image - shrink it, expand it, move it, rotate it, copy it, colour it, etc., etc.
- Spray patterns or shades, make elastic lines - stretch and manipulate shapes.
- Zoom in to add detail in fine mode. • Full cut and paste facilities plus excellent printer support.
- Pulldown/Icon driven menus for ease of use. • Mouse operation, plus joystick and keyboard control.
- 16 pens, 8 sprays, 16 brushes - so flexible anyone can create superb graphics easily.



COMPLETE WITH MOUSE INTERFACE



- The Genius Mouse Graphics System comes complete with the special Mouse Interface to allow super smooth control.
- Attractively styled to match your 464 or 6128 design and colour.
- Simply plugs into Expansion/Joystick port.

ONLY £49.99
TOTAL PACKAGE INCLUDES GENIUS MOUSE, INTERFACE, OCP ADVANCED ART STUDIO PLUS FREE MOUSE MAT AND HOLDER

FREE!
MOUSE MAT AND MOUSE HOLDER
(WORTH £12.99)
WITH EACH PACKAGE

NEW



LC 200 COLOUR PRINTER PACKAGE

NOW YOU CAN PRINT OUT YOUR PICTURES IN FULL COLOUR!

- The Star LC200 Colour Printer not only prints in Near Letter Quality for your regular jobs but also prints out your pictures from Art Studio, etc., in genuine colour!
- LC200 is a full Centronics printer so it works with other computers (Amiga, ST, etc.).
- Made possible by Datel's unique colour printer driver - now you can have a hardcopy in up to 16 colours!! • No more to buy - just plug in and print!!

PACKAGE INCLUDES... STAR LC200 COLOUR PRINTER RRP £299.00
CENTRONICS PRINTER LEAD RRP £9.99
DATEL COLOUR PRINTER DRIVER SOFTWARE RRP £19.99
NORMALLY £327.98
COMPLETE PACKAGE NOW ONLY £239.00

COLOUR PRINTER DRIVER AVAILABLE SEPARATELY ONLY £19.99

- If you already have an LC10 or LC 200 Colour Printer we can supply the Driver separately.

HOW TO GET YOUR ORDER FAST...

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WE WILL DESPATCH YOUR ORDER QUICKLY & EFFICIENTLY TO ENABLE YOU TO START RECEIVING THE BENEFITS OF YOUR PURCHASE WITHIN DAYS, NOT WEEKS. ORDERS NORMALLY DESPATCHED WITHIN 48 Hrs. ALL PRICES INCLUDE V.A.T. UK ORDERS POST FREE/EUROPE ADD £1/OVERSEAS ADD £3. PRICES AND SPECIFICATIONS CORRECT AT TIME OF PRESS AND SUBJECT TO CHANGE WITHOUT NOTICE. CALLERS WELCOME - Please reserve goods by telephone prior to visit. ALL CHEQUES/POSTAL ORDERS MADE PAYABLE TO...

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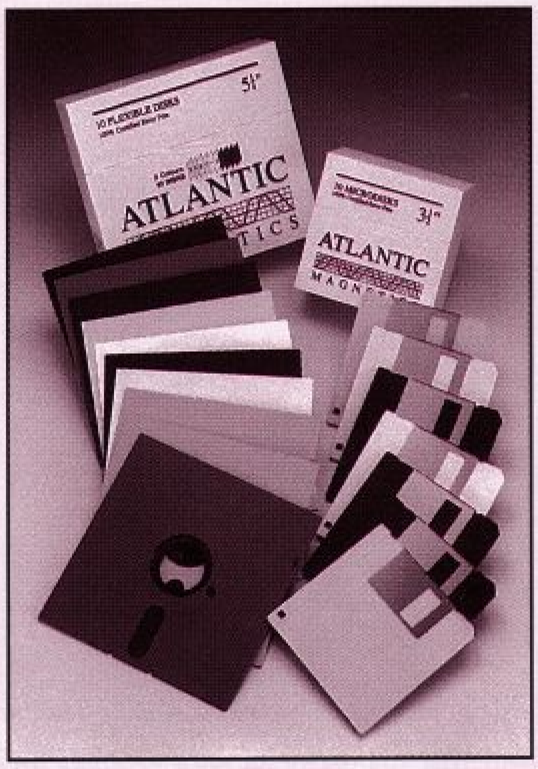
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PAINT BOX

For those who have upgraded to 3.5 inch disc drives, or 5.25 for that matter, why not brighten up proceedings with an assortment of colours in your drives.

Atlantic Magnetics are offering up to 10 different colours on both formats, with library cases and special selections to boot.

If you want to know how to brighten up your affairs, ring Atlantic on 0276 685761.



A STITCH IN TIME...

Fancy yourself as a designer? Well here's your chance with an excellent new program from HTB Computers. The idea of the program, Designer, is to help out all those who work with materials, be it knitting, embroidery, rug making, mosaics, in fact just about every craft where squared paper is used for marking up the design.

Designer offers an area up to 308 squares by 292, with up to eight colours or textures with which you can fill up the squares on your design.

At any time, you can obtain a printout of your latest creation, both in graphical form or as a line by line listing.

At just £19.95 for the disc, Designer should prove of immense value for all you budding Laura Ashley's and Yves St.Laurent.



WELL CONTRIVED

Buckingham based Contriver has come up with a joystick to suit both left and right handed ham fisters.

Based on the theory that too many delicate twists and turns can make your fingers ache, the SX1100 Challenger is firmly grasped in the fist and, if you want to fire, blast down with your fingers for excellent results.

In case you're still not sure, an LED indicator lights up every time you hit any one of the six fire buttons and, with a variable auto-fire option, you should have no problems in dealing with the bad guys.

In black or transparent, the Challenger comes with a one year guarantee and retails for £24.99 or £34.99 if you fancy getting hold of the infra-red version.

CRETE NEWS

If you're into war combat simulations, keep your eyes peeled for Crete 1941, the latest battle reenactment from London based CCS.

On May 20th 1941, the first wave of Germany's elite paratroops dropped onto Crete in General Student's proposed demonstration of the power of his airborne forces.

However, he seriously underestimated the Allied strength and resolve on the island, which led to such appalling casualties that Hitler never again mounted a totally airborne invasion.

As a one or two player game, take the role of Student's forces, or the beleaguered defence forces of Freyberg in this superb real life combat.

At £12.95 for the cassette and £14.95 for the disc, Crete 1941 is money well spent.



SUPER SUBS

Here we go again with the results of this month's subscriptions draw. The lucky winners this month are: J. Schooling of Windsor, who wins £150; D.G.Ulph of Norwich, who gets £50 and T.F.Yarney of Winchester, who gets the same.

Don't forget, whenever you renew your subscription, your name is entered into our monthly draw, so call us on 091 510 2290 to renew at any time. Good luck!

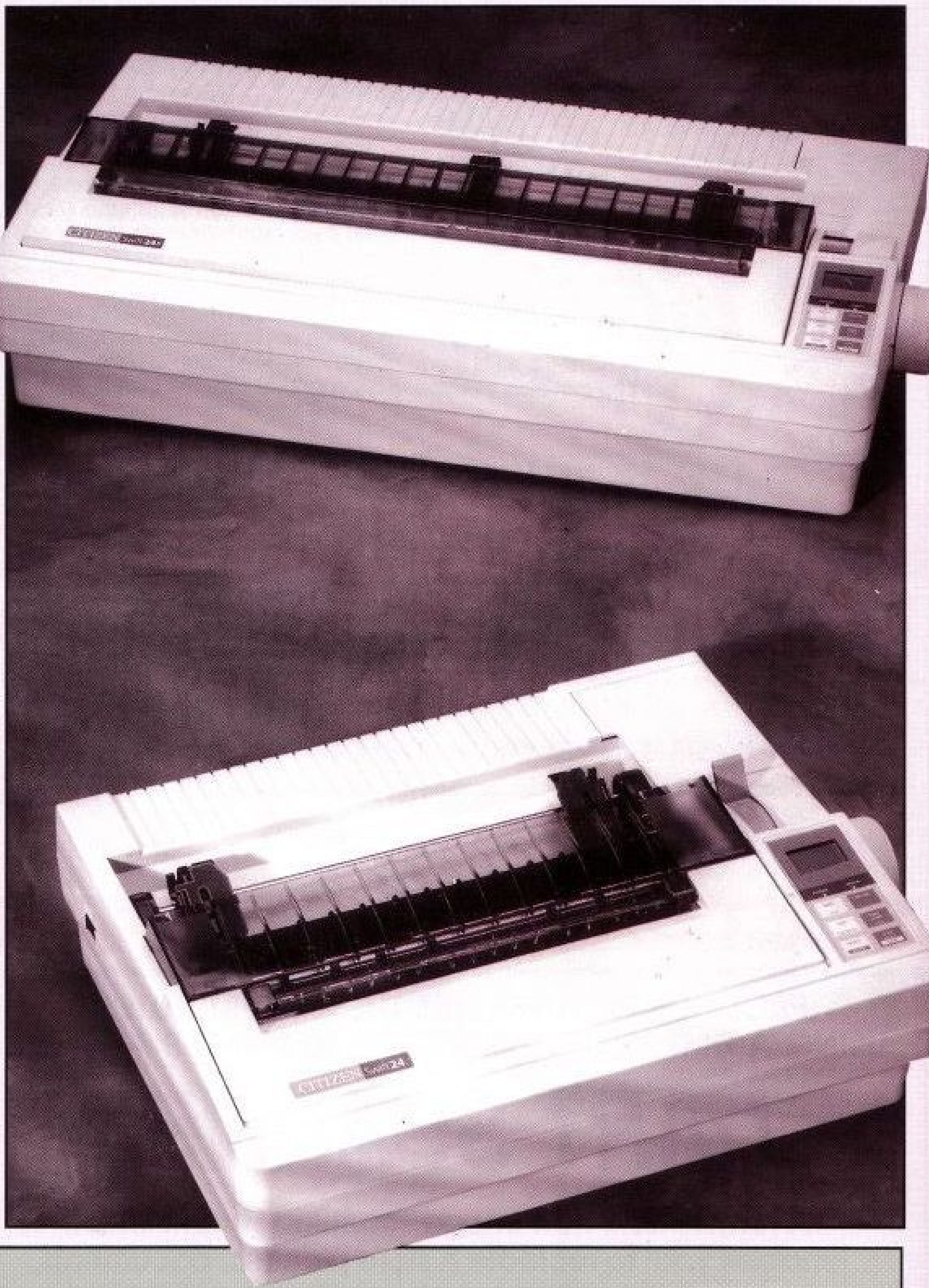
STAR TURN

Just to spice things up in the printer market, Star Micronics has chipped in with a new range of low cost printers with advanced features supplied as standard.

The LC-200, LC-24-200 and the LC24-200 Colour, which retail at £259, £319, and £369 respectively, all feature as standard an electronic dip switch, operable via the front panel, an A4 landscape format facility, caterpillar tractors for both push or pull operations, bottom feed and paper parking.

As Marketing Director Roger Bayley puts it: "We've broken new ground with these new products and anticipate winning a significant percentage of market share from the competition."

That remains to be seen, but the new machines certainly look like good value for money.

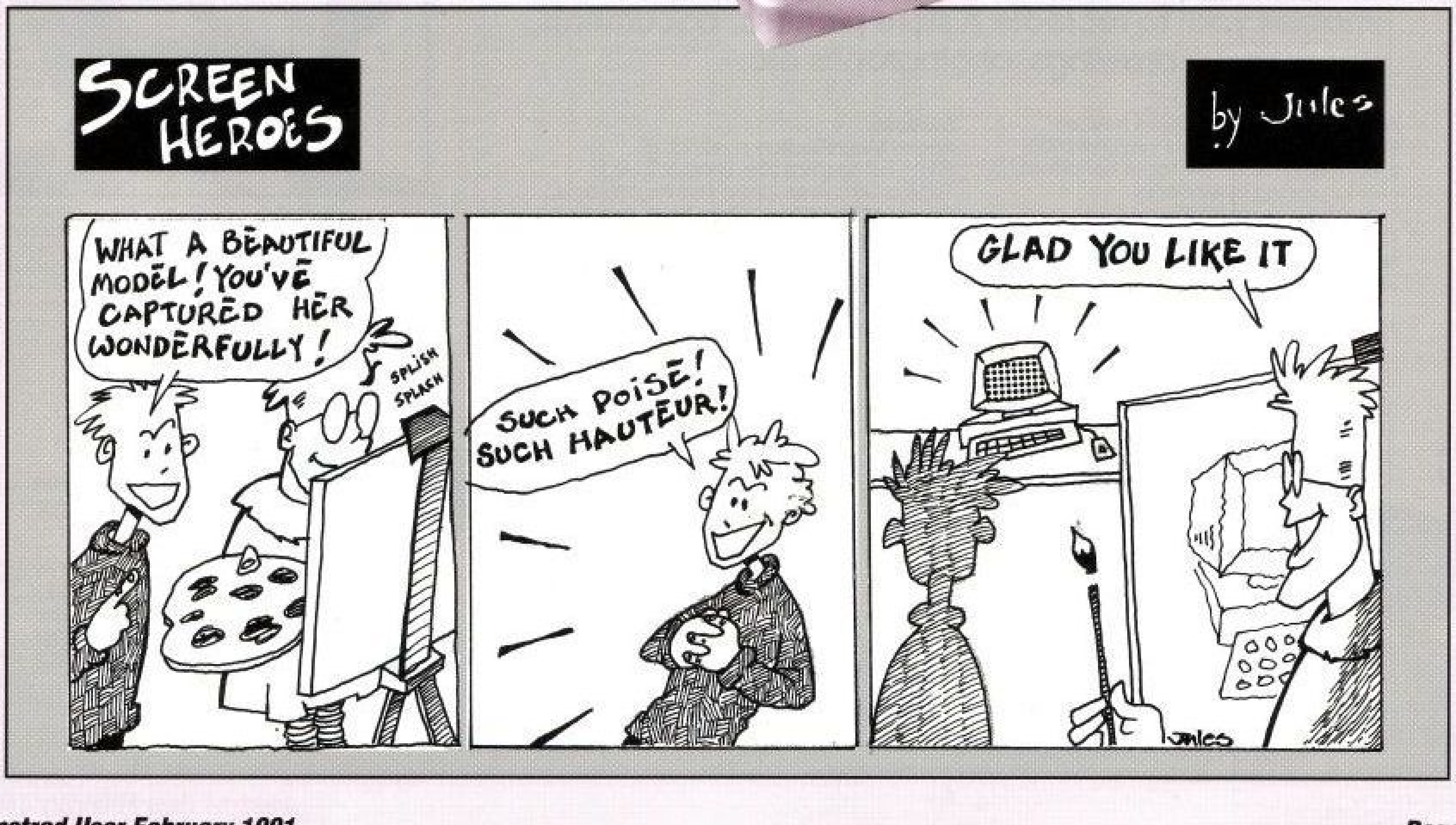


WIDE BOYS

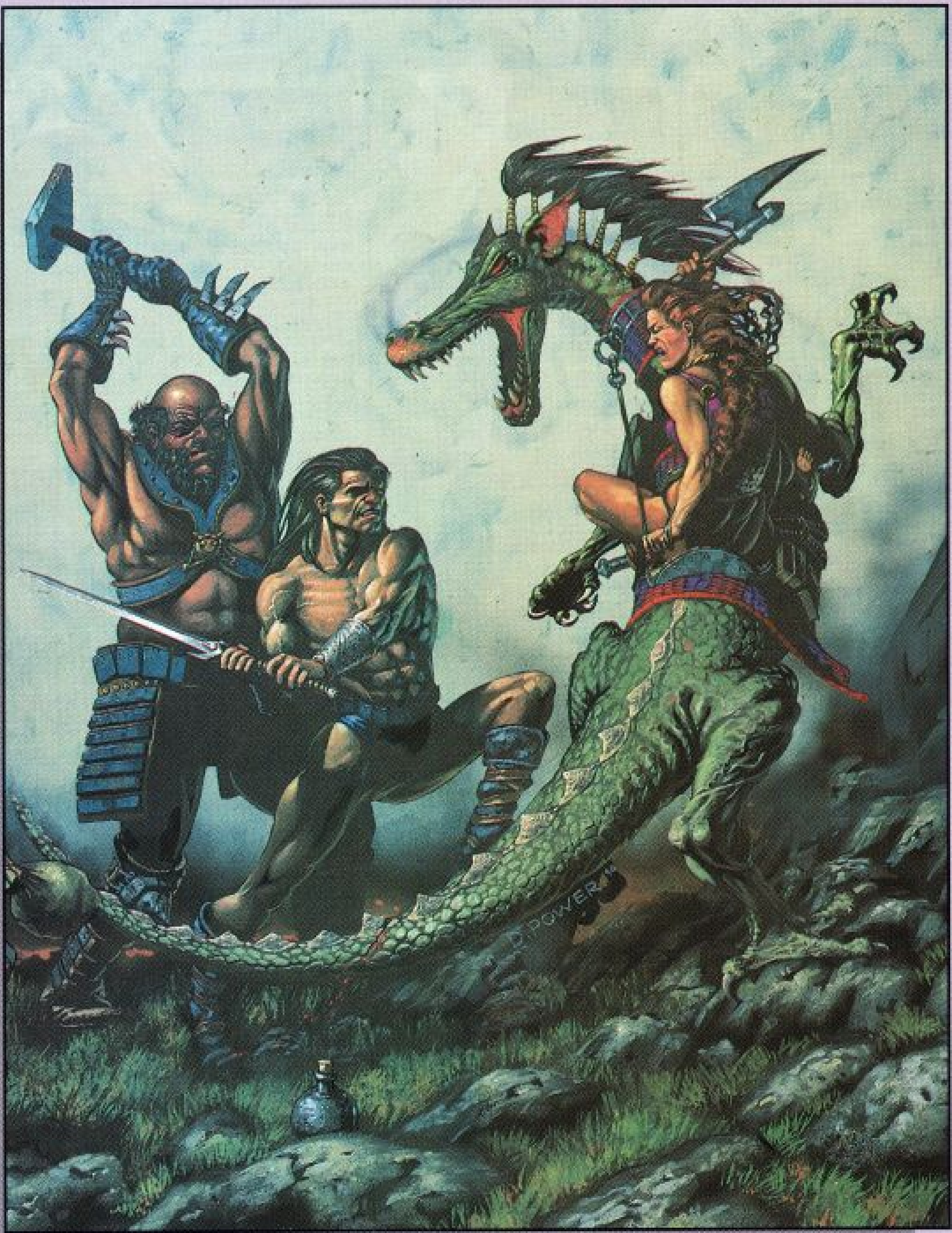
Due to popular demand, Citizen has announced the release of an extra wide version of the popular Swift 24 printer, to cater for users who require wide format printing for presentation and display material or spreadsheets.

For around £500, you get all of the features of the Swift 24, with the addition of A3 capabilities with an envelope bin, as well as Citizen's unique two year comprehensive warranty on parts and labour.

For spreadsheet users, this should be just what the doctor ordered.



COMPETITION



Time to get your adventuring socks on folks with some superb prizes courtesy of Virgin Games. The five lucky winners of this month's competition will walk away with an incredible boxed copy of Dungeon Quest, the fantasy role playing board game from the Games Workshop, as well as a copy of the excellent Golden Axe computer game. Don't worry if you don't win as there are five more copies of Golden Axe for the lucky runners-up.

All you have to do to win one of these fab prizes, is design your own magical Golden Axe. Send in your best drawing of your own hacking creation and the best five will take the prizes.

Don't forget to state which format you want the game on.

The editor's decision is final.
Send your entries to:

Axe Attack
ACU,
MSM Ltd.,
116-120 Goswell Road,
London EC1V 7QD.

BITS 'N' PIECES

As the ACU team gets set to offer you not one, but two great new features, it's up to you to help yourself to some free advertising and a fantastic new outlet for your homebrew wares.

Do you want to swap anything? Are you desperately looking for that brilliant game you played at a friend's house? Trying to get rid of some spares? Have you got a great service for CPC owners? Or do you just want to get in contact with other CPC fanatics?

Whatever, just fill in the coupon below and send in your small ad. absolutely free and let ACU BITS do the hard work for you.

Alternatively, if you've created a masterpiece that you think should be brought to the attention of the masses, take a look at the coupon below, fill in the appropriate details and send it in on disc or cassette to our great new PIECES section.

The ACU team will then evaluate your gems and, if they're up to scratch, we'll market them for you absolutely free of charge and make sure that you get a fabulous 20% royalties fee for every copy of your creation sold.

OK, so you might not get rich overnight but, who knows how far your reputation will spread with ACU's back-up and assistance.

So, come on all you budding programmers out there, get typing and make the most of this fantastic new outlet for your wares. You never know, it could just lead to that all-important phone call from the software house!

AMSTRAD COMPUTER USER

ACU BITS 'N' PIECES

Please send coupon to ACU, 116-120 Goswell Road, London EC1. Please place this ad in the next available space in Bits 'n' Pieces.

NAME ____________________

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DAYTIME TELEPHONE No. ____________________

The cost of 1-30 words inclusive is absolutely FREE for private ads in Bits.
For the Pieces scetion, just fill in a brief outline of your programe and let ACU do the rest.

Missing Molecules

Whilst looking through some very old mags the other day, I came across Vol. 2 No. 1 January 1986 copy of "Computing with the Amstrad".

In the mag, on pages 16-19 is a nice little type-in of a game called 'Molecule'. Unfortunately, lines 1140-1160 and 1400-1430 are missing due to an ad. being used from page 20.

Any chance of getting this game reprinted in the new Amstrad Computer User, or do you happen to have an old copy of that issue, or can any readers help, or is it still avaialble on sale in computer and games shops.

R. Castle, 6 Newland Drive, Wallasey, Wriral, Merseyside L44 2AX.

Ziggy: I've hunted high and low for that issue Mr Castle, but unfortunately it seems to be one of those elusive ones lost in the company moves over the years. I'm sure that one of our longstanding readers will be able to help you out though. If anyone remembers that particular game and has an up and running version, could they please let our friend on the Wirrel know? Thank you.

Wheely Good

I have an Amstrad 464 and I have not had it all that long, though I do have about 150 games. However, there is one game that I want badly, called Wheely. I have played it on a Spectrum at a friend's and have looked in every computer shop near me, but I still can't find it.

Please can you tell me where to get it, or if any ACU readers out there have a spare copy to sell, I will buy it.

J. Cook, 3 Paine Court, West Combe Park Road, Blackheath, London SE3 7RN.

Ziggy: Hmm, I'm not too familiar with that one myself, but if any of our readers out there know where to get hold of a copy, our friend Mr Cook would be more than grateful.

Noises Off

I am writing to you hoping that you can help my son with a problem. He brought a second hand SSA-1 Speech Synthesiser and amp for his 464, but when we load it, we get a face on screen which says something.

However, we don't know what it says and we can't get any further with it as we have no instructions. Is there anyone out there who can help us?

G.K. Bradbury, 40 Ashmole Place, Blackbird Leys, Oxford OX4 5TN

Ziggy: Well, I know this is going to sound dumb, but have you turned the volume up loud and clear? Otherwise, check to see if the amp has a built-in speaker, otherwise, you may have to attach one. Unfortunately, Amsoft no longer exists, so getting hold of some instructions could be a problem, unless one of our readers has an old set to spare. Can anyone help?

Print Probe

Where can I find a printer for £129 or a disc drive for the amstrad 464? What do I get when I join the Amstrad User Club?

I would like to join, but first of all I want to know what I get for my money.

P.S. You are now helping me for the YAS (Youth Award Scheme).

Peter Woolford, Bracknell, Berks.

Ziggy: What a lot of questions you've got Peter! To start with, the Star LC-10 retails at around £150 at the

ZIGGY'S MAILBOX



moment, but if you want to go up to the Tottenham Court road in London with your mum or dad, you may well be able to pick up a bargain because of the fierce competition along there. Disc drives, so I'm reliably informed, are now selling for silly money, I mean as little as £30 and, to tie that up with your last question, why not ring the User Club on 091 510 8787 for more details. The offers available to new members changes all the time, but they're always great value for money. By the way, good luck with the scheme.

Coin Slot

In November's Combaty Zone, I was reading about the Powercode from Active and Silverline. What is the address of the above and where can you get hold of arcade games, new and used?

B.D. Saunders, Watford, Herts.

Ziggy: Right, for more information about the Powercode, try Active at Unit 4, Acton Hill Mews Business Centre, 310-328 Uxbridge Road, Acton Hill, London W3 9QU. The telephone number is 081 752 0260.

For new and used arcade games, try and get hold of the trade magazine Coin Slot and look in the back pages. To order an issue, ring 061 624 3687 and get blasting.



Huge Help

I have devised a simple two-part system to help typing accuracy when entering pages of data lines such as required in the June issue listing of "Squeaker".

The first part of the system is the short 5-line program below. Line 10 is a personal choice, setting colours and can be altered to suit individual preference. Lines 20-30 redefine the small "Enter" key to print a comma. These eliminate the problem of getting that infuriating full stop embedded in the data. Lines 40-50 are just a little extra refinement customising the "Copy" key to print the word 'Data'.

If, in addition, the auto function is activated, this is how a data line goes. Type the line and, when finished, press 'Return' and 'Copy' and you are ready to start with the numbers in the next line.

Type and save this program for future use. Run it before starting on the main program listing. The second part of the system is a simple reading device to be used on the printed listing. It is cut from card and a small weight is glued to the top to stabilise it. To suit the "Squeaker" data, the width of the cut-out is such that, when the reader is laid on the printed listing, six 2-character hex numbers are seen in the opening. Read the first three and type them, read the second three and type them, then move the reader to the next six sets and so on. I chose the 6 number width because three numbers are easy to memorise and type, while showing six at a time reduces the amount of shifting of the reader.

The idea can be adapted to individual preferences and, of course, to other data formats.

The Listing.

```
10 BORDER 3: INK 0.3: INK 1,10
20 KEY 159,","
30 KEY DEF 6,1,159
40 KEY 158, "DATA"
50 KEY DEF 9,1,158
```

I hope all of this may be helpful.

W. Sloane, Newport-on-Tay, Fife.



GOLDEN AXE
Amiga
Atari ST
Commodore 64
Amstrad CPC
Spectrum
D. POWER 90
Take the challenge! The evil Death Adder has kidnapped the King and his daughter, and is lurking in his lair with the precious Golden Axe. Only you can rescue the rulers of the Land of Yuria and set their people free.
But can you battle through the six levels of this action-packed quest that is faithful to the coin-op original? Use magic to blast your enemy, slash and hack with your trusty weapon – or climb onto the back of a fire-breathing Bizarrian to deal death to the foe.
Hectic combat action awaits you...
Available on Atari ST, Amiga, Commodore 64, Spectrum and Amstrad CPC
Virgin GAMES
SEGA
© Virgin Mastertronic Ltd. 1990
© Sega Enterprises Ltd. 1989, 1990
16 Portland Road London W11 4LA

ROBOFLOP

BY DAVID HALL

Can you help out this poort no-hoper on the firing range? Run the program, then use the cursor keys to move Robo up and down and shoot the fruit before time runs out.

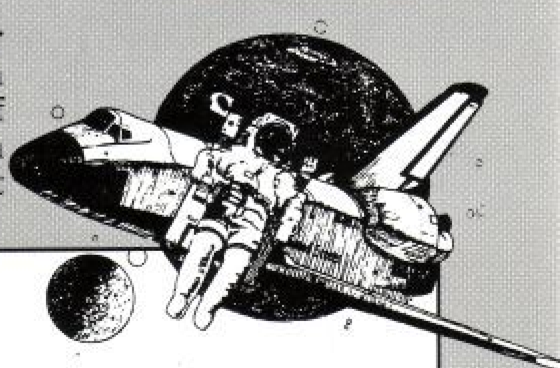


```
1 DATA CD66270021E5C1226842AF327C42327142CD6528CD9C27CD9528CD0A28CD0A28CDCB283A6
A42FE3120063E02327142C93A7142FE01C818DC3E0ACD96BB211705CD75BB3E20060CCD5ABB10FB2
1FC01226F42AFC396BB216A42060536302310FB1809216D42347EFE3A281C3E04CD90BB211608CD7
5BB0605216A427E [D5]
2 DATA CD5ABB2310F93E07C35ABB36302B18D93E48CD1EBB20213E49CD1EBB28352A68420616CD2
6BC10FB7EFE0020262A6842CDFF27CD26BC18182A6842CD29BC7EFE0020100616CD26BC10FBCDFF2
7CD29BC2268422A68421147290E163E08327942E53A7942471A77231310FAE1CD26BC0D20EEC9060
836002310FB2A68 [C3]
3 DATA 42C93A7C42FE0020183E01327C422A6842110800190606CD26BC10FB227D4218422A7D421
10800190603 7EFE002012CD26BC10F62A7D4223227D42217C42341822FE442009AF327C4211A72A1
81811A72ACD3229CD4D28CD7227CD7227CD7628C3482711F7292A7D420E03C3E727AF3274423C327
542ED5FFE8030FA [0A]
4 DATA FE0028F62146C047CD26BC10FB227642C9217242347EFE03C0AF3600CDDEBBED5B6F42212
C00CDEABB11000021F6FFCDF9BB2A6F422B226F427CFE00C07DFE80C03E01327142C9217442347EF
E23200F36002175423601ED5FFE40380236022A76423A7542FE022817CD29BC7EFE0020270608CD2
6BC10FBCD3C29CD [BB]
5 DATA 29BC18150608CD26BC10FB7EFE00200C2A7642CD3C29CD26BC2276423A6B420630901F210
F2A111800FE002804471910FDEB2A76420E083E03C3E92706033600 2310FB2A7642C900000C0C58A
00000000C0F0FF5FA0000040F0E0DFF032800040E0D2DFF0328000D0E0F2D5FAF1E000D0D0F1E0F0
F1E000D1C3C3C2D [1E]
6 DATA 0F1E0C0D0F0F0F0F1E0C1C3C3C3C3C3C0C0000000000000000000D0F0F0F0F1E00000
0000000000000C0C0C0C0C0C000D0F0F0F0F1E000D0C0D0C0E0C1E000D0D2D1C0E1E1E000D0
D2D1C0E1E1E000D0D2D1C0E1E1E00141E2D1C0E2D2800040F0F3C0F0F2800001C0F0F0F3C0000000
03C3C3C00000000 [1D]
7 DATA 008800A0008000004444505050404008800A000A00080001100002200444440098CC88CCC
C88CCCC88CCCC8844CC0000000000220050500 0F0F0A0F0F0A0F0F0A0F0F0A050F000050F000F250
A1A0F0A1A0F0A0F0F0A0F0F0A0F0F0A050F00C04080C04080E0F08050F00044E400CCCC88CC4488C
C448880C04040 [A3]
8 a$(1)="Hard Cheese":a$(2)="MAGNIFICENT":l=10000:FOR m=1 TO 8:READ a$:FOR t=1 T
O LEN(a$) STEP 2:POKE l,VAL("&"+MID$(a$,t,2)):l=l+1:NEXT:NEXT:MODE 0:BORDER 0:IN
K 8,6,15:INK 15,26,15:a$=CHR$(150):c$=CHR$(153):d$=CHR$(154):INK 0,0:m$=" ":e$=C
HR$(149):h$="" [6D]
9 f$=CHR$(147):g$=CHR$(156):w=17:k$=SPACE$(17):INK 5,15:p$=d$+d$+d$+d$+d$+d$:PEN
 5:GOSUB 10:LOCATE 1,1:PRINT CHR$(11);:PEN 3:GOSUB 10:CALL 10000:PEN 9:LOCATE 6,
10:PRINT a$(PEEK(17009)):FOR t=1 TO 2000:NEXT:RUN:DATA c08080C011809111C0333311C
C2211CC22223311 [98]
10 y$=m$+e$+k$+e$+h$:PRINT m$a$STRING$(17,d$)g$h$;:FOR t=1 TO w:PRINT y$;:NEXT:P
RINT m$f$p$g$"   "a$p$c$h$;:LOCATE 8,20:PRINT m$e$"   "e$:PRINT m$a$p$c$"   "f$d
$"Score"g$h$;:PRINT y$;:PRINT y$;:PRINT m$f$d$"Time"STRING$(12,d$)c$h$;:m$="":h$
=CHR$(9):RETURN [CE]
```

DIGITAL

BY SEAN McMANUS

Watch out for this excellent colour swapping demo, featuring full screen size digits on a countdown to blast off from 99 seconds. Press any key when the program is up and ready and use it for what you will.



```
1 ' Demonstration of colour switching [71]
2 ' Digital Countdown [72]
3 ' (C) 1990 Sean McManus [73]
4 ' [74]
10 ON BREAK GOSUB 100:MODE 0:GOSUB 70:ORIGIN 0,0,0,640,0,400:GRAPHICS PEN 0:REST
ORE:FOR g=1 TO 7:READ x,y:MOVE x,y:FILL g:MOVE x+370,y:FILL g+7:NEXT:DIM digits(
9,7):DATA 90,350,70,250,200,250,90,200,200,100,70,100,90,50 [6F]
20 SYMBOL 255,48,254,22,60,116,210,254,16:LOCATE 20,25:PEN 15:PAPER 0:PRINT CHR$
(255);:FOR digs=0 TO 9:FOR onoff=1 TO 7:READ digits(digs,onoff):NEXT onoff,digs
[E2]
30 WHILE 1=1:CALL &BC02:CALL &BB06:INK 0,10:BORDER 10:INK 15,26:FOR g=99 TO 0 ST
EP -1:FOR h=1 TO 7:IF digits(INT(g/10),h)=1 THEN INK h,0 ELSE INK h,13 [99]
40 IF digits(g MOD 10,h)=1 THEN INK h+7,0 ELSE INK h+7,13:DATA 1,1,1,0,1,1,1,0,0
,1,0,1,0,0,1,0,1,1,0,1,1,1,0,1,1,1,0,1,0,1,1,1,1,0,0,1,1,0,1,1,0,1,0,1,0,1,1,1,1
,1,0,1,0,1,0,0,1,1,1,1,1,1,1,1,1,1,1,0,1 [EA]
50 NEXT:FOR pause=1 TO 200:NEXT:SOUND 7,0,5,15:NEXT:FOR g=1 TO 500:NEXT:WEND [5C
]
60 MODE 2:INK 1,26:INK 0,0:BORDER 0:PEN 1:PAPER 0:LIST [0E]
70 RESTORE 70:FOR g=1 TO 4:READ x,y:ORIGIN x,y:GOSUB 80:NEXT:RETURN:DATA 130,290
,130,130,500,130,500,290 [47]
80 FOR x=-1 TO 1 STEP 2:FOR y=-1 TO 1 STEP 2:PLOT 60*x,1*y,1:DRAWR 0,50*y:DRAWR
20*x,20*y:DRAWR 20*x,0:DRAWR 0,-70*y:MOVE -120,50*y:MOVER 60,40*y:DRAWR 110,0:DR
AWR 0,-20*y:DRAWR -20,-20*y:DRAWR -70,0:DRAWR -20,20*y:DRAWR 0,20*y:NEXT y,x [75
]
90 MOVER -x*10,-y*10:FILL 1:MOVER x*25,-y*1:FILL 1:MOVER x*30,-y*10:FILL 1:MOVER
 -x*15,-y*30:FILL 1:RETURN [8B]
100 MODE 2:INK 1,26:INK 0,0:BORDER 0:PEN 1:PAPER 0:LIST [C7]
```

3D-WORLD

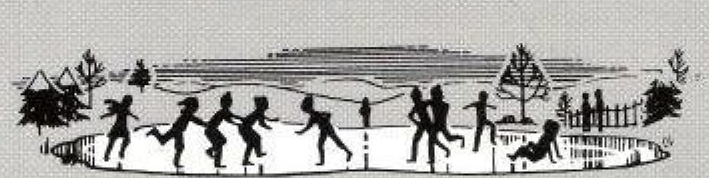
BY ALAN SCULLY

Run this beauty and see the world appear before your very eyes in grid form. If you can print this out, finding a suitable location on it for ACU and sned it in to us, the first one in may find a small prize on its way back!



```
10 ' 3D WORLD - PUBLIC DOMAIN by ALAN SCULLY - for ACU / SCULL PD LIBRARY [F1]
20 MODE 2:DEG:INK 0,0:BORDER 0:LOCATE 1,1:PRINT"Please Wait..." [35]
30 DIM s(360),c(360):FOR m=0 TO 360:c(m)=COS(m):s(m)=SIN(m):NEXT [87]
40 LOCATE 1,1:PRINT"Drawing the World..." [F1]
50 FOR r=0 TO 200 STEP 20:MOVE 320+r*S(0),200+200*C(0):FOR m=1 TO 360 STEP 2:DRA
W 320+r*S(m),200+200*C(m),1:NEXT m,r [CD]
60 FOR r=0 TO 200 STEP 20:MOVE 320+200*c(0),200+r*s(0):FOR m=0 TO 360 STEP 2:DRA
W 320+200*c(m),200+r*s(m),1:NEXT m,r [8E]
70 LOCATE 1,1:PRINT"3D World - Alan Scully '90" [0B]
80 LOCATE 68,25:PRINT"Press any Key";:CALL &BB18 [E2]
```

WINTER



BY DAVID HALL

Not enough snow or rain out there for your liking this winter? Why not create some on your own screen then with this handy demo. Run it, then choose whether you want rain or snow, whatever mood you're in.

```
1 ' * WINTER TIME *  by David Hall [71]
10 MODE 0:INK 0,0:BORDER 0 [94]
20 PAPER 0:INPUT "1=Snow / 2=Rain ";a [BB]
30 INK 1,38-12*a:IF a=2 THEN 70 [E8]
40 FOR t=1 TO 3:PLOT RND*640,396,1 [42]
50 CALL &BD19:NEXT:PRINT CHR$(11); [B7]
60 MOVE 0,6:DRAWR 640,0:RUN 40 [1B]
70 LOCATE RND*19+1,1 [1A]
80 PRINT CHR$(149)CHR$(11):RUN 70 [9F]
```



ENVLIST

BY SEAN McMANUS

This neat little proggy installs two RSX's ENVLIST and ENTLIST, which prints out a list of the sound envelopes set up, to see which are free and which are set up without having to scour through screenfulls of program code.

```
1 ' ENVELOPE LISTER [71]
2 ' (C) 1989 SEAN MCMANUS [72]
3 ' [73]
10 MODE 2:INK 1,26:INK 0,0:BORDER 0:PRINT"ENVELOPE LISTER UTILITY":PRINT:PRINT:P
RINT"By Sean McManus":PRINT:PRINT:PRINT"New commands:":PRINT"|ENTLIST; |ENVLIST.
":PRINT:PRINT"Machine code loading into 40000-40277":PRINT"Himem:39999":PRINT:PR
INT [A3]
20 MEMORY 39999:ADDR=40000:FOR G=1 TO 7:CHK=0:FOR H=1 TO 40:READ A$:D=VAL("&"+A$
):POKE ADDR,D:CHK=CHK+D:ADDR=ADDR+1:NEXT:READ CHK2$:IF VAL("&"+CHK2$)<>CHK THEN
PRINT"ERROR IN LINE"G*10+180:END [57]
30 NEXT:CALL 40000 [A1]
40 DATA 01,4D,9C,21,49,9C,C3,D1,BC,FC,A6,4D,9C,56,9C,C3,CE,9C,C3,65,9C,C9,45,4E,
54,4C,49,53,D4,45,4E,56,4C,49,53,D4,00,CD,1D,9D,1346 [73]
50 DATA 21,90,9C,36,C2,21,DC,9C,CD,4D,9D,3E,01,CD,6F,BB,06,01,C5,78,C6,03,CD,72,
BB,3E,01,CD,6F,BB,C1,C5,78,CD,FF,9C,C1,78,C5,CD,1539 [32]
60 DATA C5,BC,DC,A1,9C,C1,78,3C,FE,10,CA,42,9D,47,C3,7A,9C,E5,C5,3E,20,CD,5A,BB,
C1,E1,7E,FE,00,C8,46,3E,00,C6,03,10,FC,47,23,E5,155E [8C]
70 DATA C5,7E,CD,FF,9C,C1,E1,05,C8,23,E5,C5,3E,2C,CD,5A,BB,C1,E1,C3,B7,9C,CD,1D,
9D,21,90,9C,36,C5,21,F0,9C,C3,70,9C,41,4D,50,4C,1660 [DE]
80 DATA 49,54,55,44,45,20,45,4E,56,45,4C,4F,50,45,53,2E,54,4F,4E,45,20,45,4E,56,
45,4C,4F,50,45,53,2E,16,64,CD,0B,9D,16,0A,CD,0B,B96 [10]
90 DATA 9D,16,01,0E,00,92,38,03,0C,18,FA,82,F5,79,C6,30,CD,5A,BB,F1,C9,3E,02,CD,
0E,BC,3E,01,CD,90,BB,3E,00,CD,96,BB,3E,01,01,1A,1013 [15]
100 DATA 1A,CD,32,BC,3E,00,01,00,00,CD,32,BC,01,00,00,C3,38,BC,3E,0A,CD,5A,BB,3E
,0D,CD,5A,BB,C9,7E,FE,2E,C8,CD,5A,BB,23,C3,4D,9D,10CB [23]
```

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Reading between the lines



Gordon logs onto Maxwell House to read the mail, and shows you what you're missing!

It's been a busy few weeks on the Maxwell House BBS, with lots of public mail flowing through. I've pulled a few of the messages off the system for you to peruse at your leisure, and see what you're missing if you're not using th4 system.

While you're reading it, make sure you don't miss the messages about Alcofrolics Anonymous - poor bods don't seem to be able to get their comic out on time!

Here they are!!

Msg # 68 of 95
Date: Fri 21/09/90, 1:50
From: IAN MCCABE
Read: 30 times [1 Reply]
Reply-To: BOB ELMES, "Amstrad Computer User, Comms section."
Subject: Starting your own BBS

Hi Bob, Havn't heard from you for a while, anyway onto your question. You want to start your own BBS, well in this day and age of computer technology why not use a cpc for such a purpose, it may be a rather timid computer com-

pared to a PC, but who wants to spend thousands of hard earned pounds so that it can only be used as a BBS, why not use a less expensive computer such as the CPC.

I run my own BBS on a CPC, it's called the Grenadier, it's run using commercial software, but I do believe that the author is thinking of putting it into the Public Domain because of lack of interest, but you will have to wait and see about that one, the software is called BullDog and as a commercial software is very inexpensive at only about 25 pounds, so that's one for you. Another one is ROS, this is already in the Public Domain and is written in Turbo Pascal, what this means is that you get all the files that are needed to set the system up, but you will have to configure a few things on it and maybe even write your own modem overlay (That's if you have a more recent modem, it does come with a long list of modem overlays for you to choose from), then you compile the whole thing using another PD program called Turbo (I think), this will then make your ready to run Bulletin Board System, Bob Garbutt has just set his up on ROS and told me it took 25 minutes to compile, but was well worth it in the end, so it might be an idea leaving him a message here or even calling his board direct, the number is in the Bulletins part of this BB...

Hope this is of help!!! Ian...

Msg # 70 of 95
Date: Fri 21/09/90, 19:10
From: BOB ELMESRead: 28 times
Reply-To: IAN MCCABE, "Starting your own BBS"
Subject: BB Setup

Thanks for the advice. The reason I haven't been calling is becuase I am trying to cut down on the phone bill.

From bob.............

Msg # 71 of 95
Date: Tue 25/09/90, 18:25
From: ERIC JAN VD BOGAARD
Read: 24 times [1 Reply]
Subject: A.A. mag has anyone the oktober issue of Amstrad Action already ? or does it not yet come out ?

Msg # 72 of 95
Date: Wed 26/09/90, 12:08
From: ANDREW NORRIS
Read: 28 times
Reply-To: ERIC JAN VD BOGAARD, "A.A. mag"
Subject: Re: A.A. mag

Good question, last months said it would be out on Thursday 18 Oct. They are beginning to fall behind gradually aren't they?

Msg # 73 of 95
Date: Fri 28/09/90, 16:09
From: ERIC JAN VD BOGAARD
Read: 22 times
Reply-To: ANDREW NORRIS, "Re: A.A. mag"
Subject: reply/AAmag.

yes, indeed, I hope this happens not to offen, because I'm only once a month in London to buy one, and what's about that cover cassette,? I've heard about ? o.k. that's it, keep me informed, about that, thanks, bye, ... Eric.(NL)

Msg # 74 of 95
Date: Sun 30/09/90, 14:58
From: BOB MOFFATT
Read: 17 times
Subject: AA

The next issue of AA does have a freebie cassette Eric, Yours, Bob.

Msg # 75 of 95
Date: Mon 1/10/90, 19:01
From: TIMOTHY GILES
Read: 18 times
Subject: Uploading and Downloading
No.1 Please could we, or I have some help on this problemo.
No.2 Any other good Amstrad CPC bbs's around
No.3 ACU is the best
No.4 I tried to upload and failed,i need a MFTU(Multi.File.Transfer.Util)for my 6128 and some help on Desktop,Zsm.How do i run them under CPM???
No.5 All help warmly recieved
No.6 My phone bill for 4 months is now 561.26,beat that!!!???

byyyyeeeee. (Who didn't read my article on keeping the bills down, then?? GB)

Msg # 77 of 95
Date: Tue 2/10/90, 17:05
From: ERIC JAN VD BOGAARD
Read: 19 times
Reply-To: TIMOTHY GILES, "Uploading and Downloading"
Subject: I think Infotel is also a good BB !!!!!!

see title ^

Msg # 78 of 95
Date: Tue 2/10/90, 20:15
From: ALASTAIR STARK
Read: 22 times [2 Replies]

Forwarded From: Applications Advice Subject: serial port connections

I know it is possible to connect things to the ports on the back of a cpc, but, as far as I can see there is no information on what is actually sent out of the ports, and where. For example, I have thought of building a drum synthesiser which needs a single pulse at specified intervals. Does anyone out there know how or where I would connect it to the computer (if it is possible), and how I could send pulses out (I am willing to use machine code)??

Hoping,
Alastair

Msg # 79 of 95
Date: Tue 2/10/90, 23:57
From: JOHN HARMER
Read: 19 times
Forwarded From: Bulletins Subject: MONITOR PROBLEM

WOULD APPRECIATE HELP IN CONNECTING GT 65 6128 MONITOR TO MY PPC 640 HAVE TRIED SEVERAL PERMITATIONS WITH LIMITED SUCCESS IF ANYONE CAN HELP PLEASE POST SUGESTION ON THE MESSAGE BOARD THANKS.

Msg # 80 of 95
Date: Fri 5/10/90, 17:51
From: ALASTAIR STARK
Read: 21 times [1 Reply]
Forwarded From: Main Menu
Subject: downloading

I Have had problems with downloading software, especially cpc basic or machine code programs. I think it is due to the fact that some of them have not been uploaded properly, although there is a slight possibility that it is my fault. The download is always successful (I use xmodem), but when I try and load or run the programs from BASIC, I get "Direct command found", and nothing happens. Is there anything I can do to stop this, or is there something which one has to do to upload programs properly? I think it could be something to do with ASCII files.

Alastair

Msg # 81 of 95
Date: Tue 9/10/90, 6:18
From: GEORGE HO-YOW
Read: 20 times [1 Reply]
Reply-To: ALASTAIR STARK, "downloading"
Subject: Downloading and direct cmd

You are correct in assuming that the programs were uploaded incorrectly, Alastair. Progs should be uploaded in ASCII saved files. Files uploaded in BASIC format have their headers removed and can't be RUN "<filename>". The ones with <filename.ASC> should be runnable however. Bye!

Msg # 82 of 95
Date: Tue 9/10/90, 6:28
From: GEORGE HO-YOW

Read: 22 times
Reply-To: GEORGE HO-YOW, "Downloading and direct cmd"
Subject: Saving files before uploading

Me again! To answer your final question, use: SAVE "discfile.asc",A this will then upload in an acceptable form. Cheers!

Msg # 83 of 95
Date: Tue 9/10/90, 16:42
From: JOHN PRIESTLEY
Read: 24 times
Reply-To: ALASTAIR STARK, "serial port connections"
Subject: Serial port

Alastair, get a book called "Ins & Outs of the Amstrad" by Melbourn House It gives all info on out commands, serial port, printer port, etc

John.

Msg # 84 of 95
Date: Mon 15/10/90, 17:35
From: TIMOTHY GILES
Read: 19 times
Subject: downloading

Please take notes,some of the files I uploaded were wrongly uploaded,when downing,put save"discfile.asc",a It should save O.K.

Msg # 85 of 95
Date: Tue 16/10/90, 18:28
From: BOB DUNFORD
Read: 24 times [2 Replies]
Forwarded From: Bulletins
Subject: Format Definition

Please help, I am baffled by some of the terms used on BBs, I understand 300/300 Baud, 1200/1200, 1200/75 etc but what is V22, 22bis, v21, V23 etc, are all BBs on 8N1 or are some like the hated Prestel (At least I dislike them). Many thanks.

..

Msg # 86 of 95
Date: Tue 16/10/90, 20:59
From: ERIC JAN VD BOGAARD
Read: 22 times [1 Reply]
Reply-To: BOB DUNFORD, "Format Definition"
Subject: formats

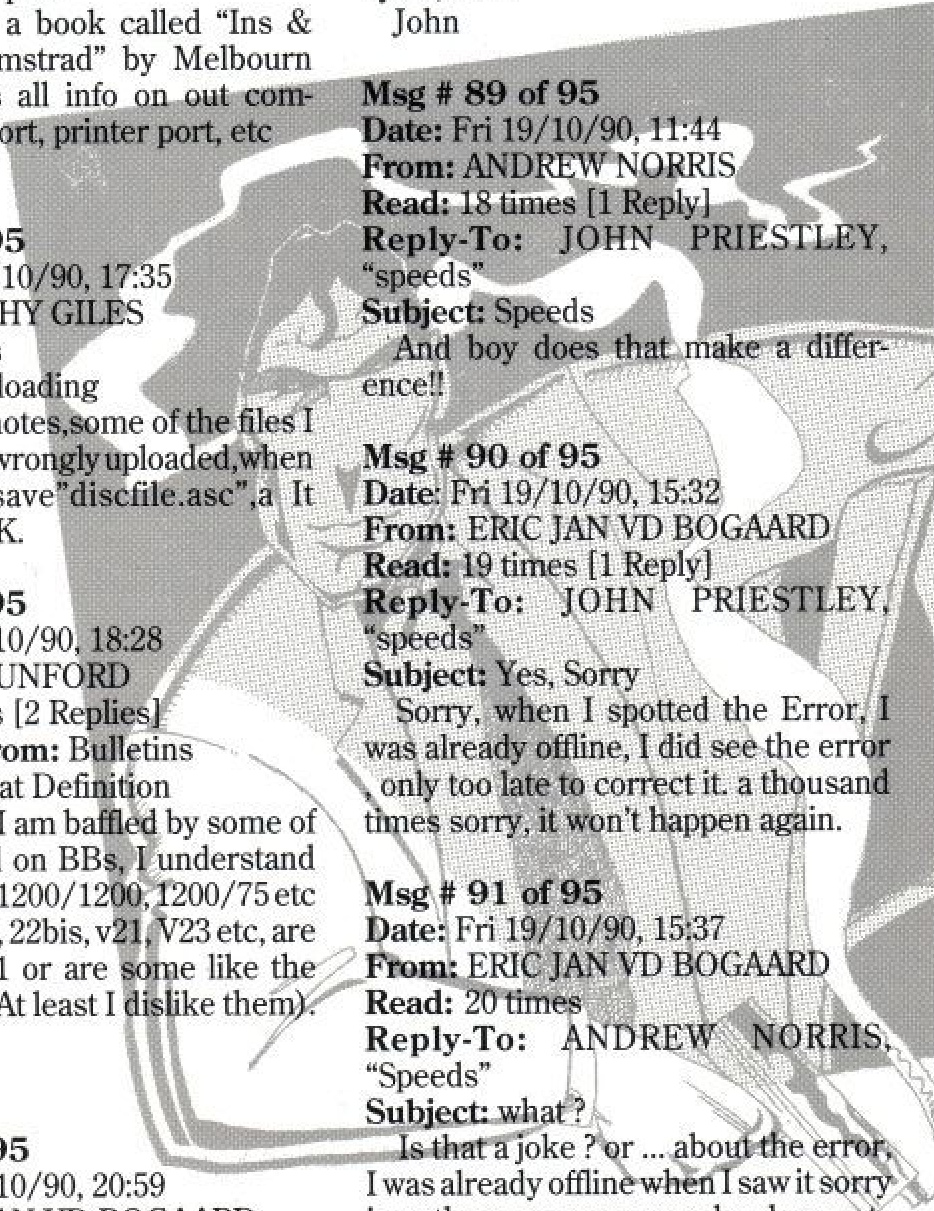
Hello Bob, here's a letter from, Holland !!!!! mainly it's the same what you're askin' namely, 300/300=V21, 1200/1200=V22, 2400/2400=V22bis, and V23=1200/75 (special Prestel standard) where you - recieve at a speed of 1200 bps (bytes per second) and - you transmit at 75 bpm. so, I think this is not to difficult to understand, bye, Eric.

Msg # 87 of 95
Date: Tue 16/10/90, 21:07
From: ERIC JAN VD BOGAARD
Read: 20 times
Reply-To: BOB DUNFORD, "Format Definition"
Subject: cont.

Sorry, I forgot to mention, the other stuff, stands for - parity, and stopbits. bye, Eric.

Msg # 88 of 95
Date: Wed 17/10/90, 18:29
From: JOHN PRIESTLEY
Read: 14 times [2 Replies]
Reply-To: ERIC JAN VD BOGAARD, "formats"
Subject: speeds its bits per second not bytes, Eric

John



Msg # 89 of 95
Date: Fri 19/10/90, 11:44
From: ANDREW NORRIS
Read: 18 times [1 Reply]
Reply-To: JOHN PRIESTLEY, "speeds"
Subject: Speeds

And boy does that make a difference!!

Msg # 90 of 95
Date: Fri 19/10/90, 15:32
From: ERIC JAN VD BOGAARD
Read: 19 times [1 Reply]
Reply-To: JOHN PRIESTLEY, "speeds"
Subject: Yes, Sorry

Sorry, when I spotted the Error, I was already offline, I did see the error , only too late to correct it. a thousand times sorry, it won't happen again.

Msg # 91 of 95
Date: Fri 19/10/90, 15:37
From: ERIC JAN VD BOGAARD
Read: 20 times
Reply-To: ANDREW NORRIS, "Speeds"
Subject: what ?

Is that a joke ? or ... about the error, I was already offline when I saw it sorry ! are there anymore people who wants to respond ? I tell you it won't happen again !!!!!!!!

Msg # 92 of 95
Date: Sat 20/10/90, 12:21
From: JOHN PRIESTLEY
Read: 19 times
Reply-To: ERIC JAN VD BOGAARD, "Yes, Sorry"
Subject: its ok

Its ok, we are only human
John

Msg # 93 of 95
Date: Mon 22/10/90, 14:49
From: ALFRED DALTON
Read: 18 times
Reply-To: TIMOTHY GILES, "Uploading and Downloading"
Subject: my last phone bill was 7.33 (seven pound hi timothy, my last phone bill was only #7.33, beat that grin bfn peter

(Now, Alfred obviously HAS read that article!)

Msg # 94 of 95
Date: Mon 22/10/90, 14:53
From: ALFRED DALTON
Read: 20 times
Reply-To: ALASTAIR STARK, "serial port connections"
Subject: hi Al alastair,

hi Alastair, it's a bit risky sending data out of the printer port but it can be done. I could give details if you require. The best , and safest method is to build a PIO board. fairly simple to do and should cost about ten pounds. the advantages are that any odd pulses coming back from your add ons should be stopped from entering the computer and you could also use the PIO for controlling other things. Again I can give details if required but they will be in the form of a circuit diagram so I would need your address to send them(no charge) hope I can help Peter

Msg # 95 of 95
Date: Mon 5/11/90, 20:49
From: IAN MCCABE
Read: 2 times
Subject: Amstrad CPC & PCW Board
Speeds: V21, V22, V23, V22bis
Times: 20.00 to 06.00 (8.00pm to 6.00am)
Sysops: Ian & Pamela Mccabe

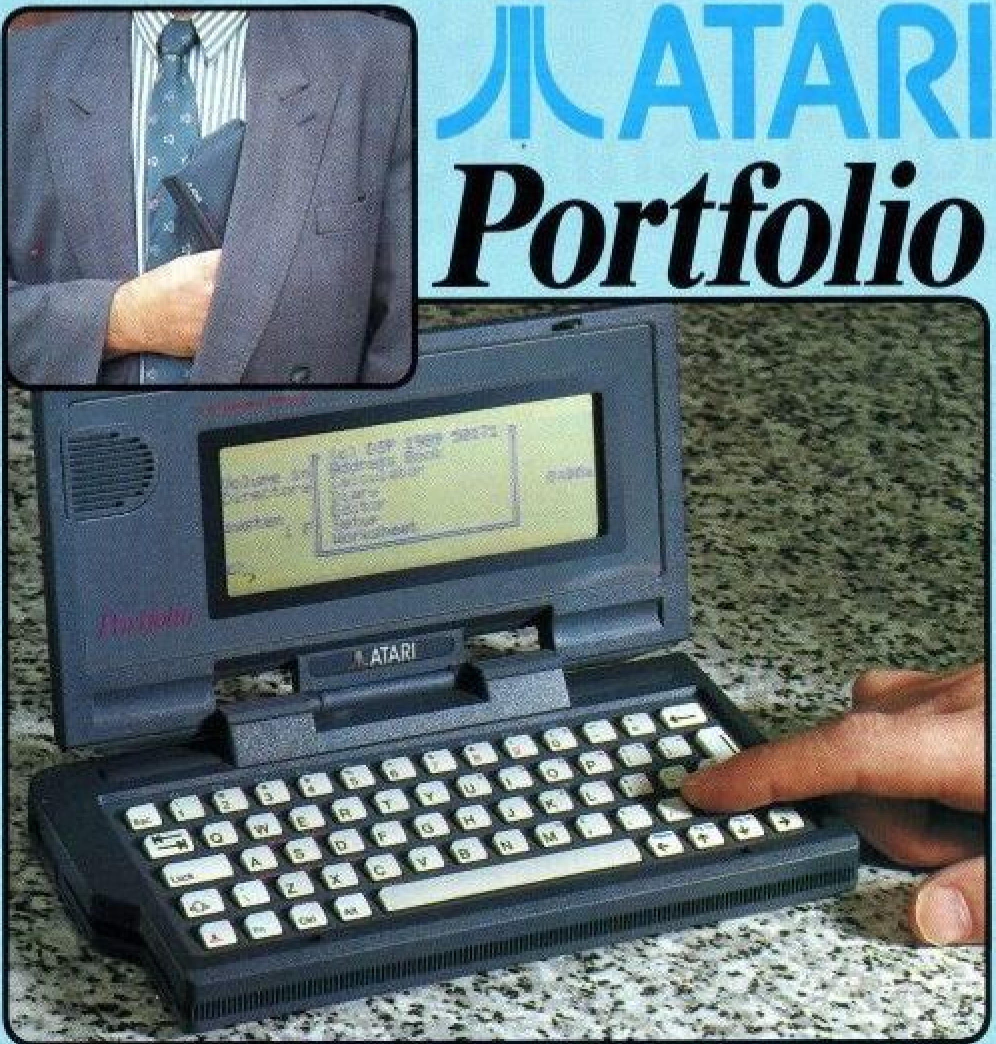
Screen By John Priestley : 1990 TEXTgrafix – The board is Amstrad CPC and PCW specific, offering files and messages for both the machines, the board also covers CPM but not to as much as the main computer setup software. – *COMPETITION*COMPETITION*COMPETITION*COMPETITION*COMPETITON*COMPETITION* The board is also running a Quiz Line General Knowledge Competition, ran over a 12 week period, you must get as many questions correct as you can and the user with the most correct will win a PRIZE. - The board is totally free, all that is required is that you register. – So go on, give the Grenadier a Call now!!

End of Messages

Assit - I'll be back next month! Seeya then (and a merry Xmas to one and all – I hope Santa brings you a nice new modem)

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TEXT PROCESSOR

The Portfolio's built-in text processor program includes word wrap, line and column count, string search, in fact most of the functions you would find in a word processor. It handles printer and word processor control codes and allows easy transfer of files between Portfolio and your desktop PC.

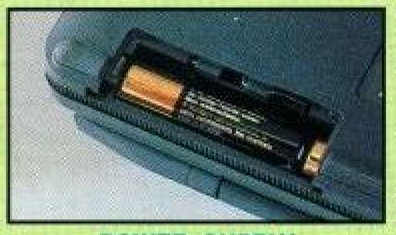
SPREADSHEET

For real calculating power, Portfolio has a Lotus 1-2-3 compatible spreadsheet built-in. It has 127 columns x 225 rows and reads/writes Lotus V1.0 and V2.01 files, so you can transfer data to and from Lotus 1-2-3 on your desktop PC. The Portfolio's 256K ROM includes MS-DOS and PC BIOS compatible systems software.



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Portfolio can store and retrieve data and programs from its own RAM, or from small credit card size memory cards, that slot into its built-in card drive. The cards are available in three sizes, 32K, 64K and 128K, so you can carry a library of data in your pocket. The card drive also accepts ROM cards, which can contain commercial or custom software.



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Portfolio is powered by three AA batteries which will run for up to six weeks with normal use, or from the mains using an adaptor. All the peripherals take their power from the Portfolio, so no extra batteries or adaptors are required. A 'battery-low' warning and memory back-up ensure that information is not lost when the batteries are changed.



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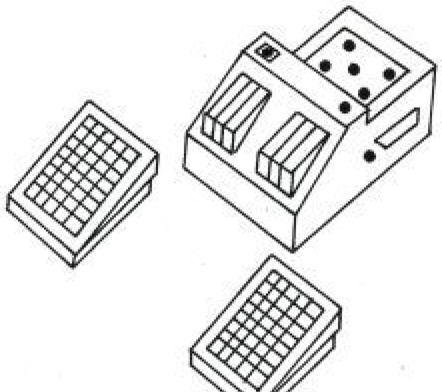
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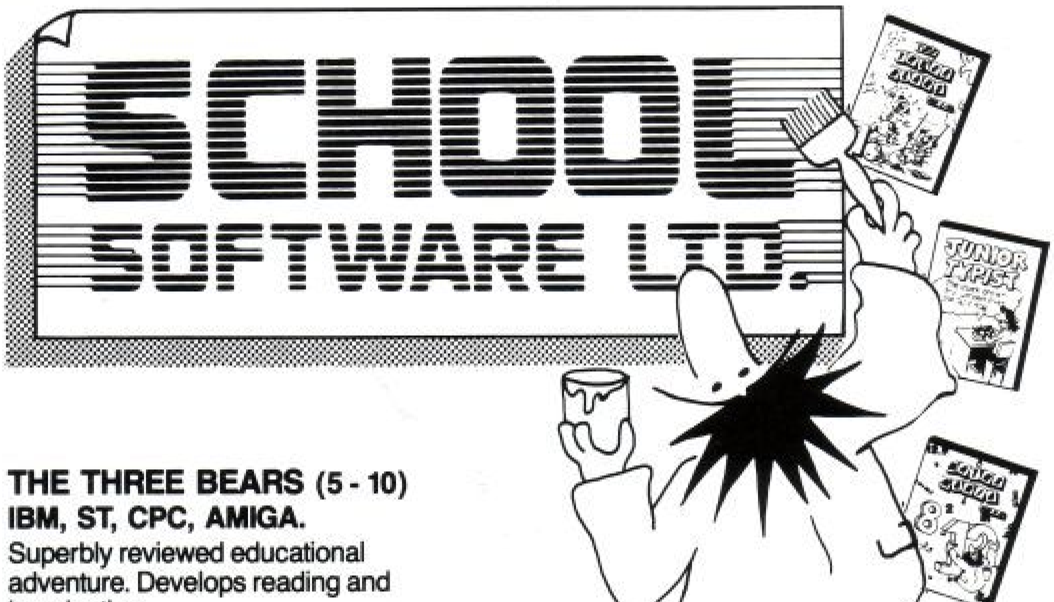


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New Orleans exotic? Well, I'll tell you this – it's better than Tooting on a wet Saturday night, for starters. And if it's good enough for the American Machine Operators Association to hold its annual shindig, it's good enough for me.

Several thousand square feet of coin-ops, coin-ops and more coin-ops and do you know what? They're all free!

All the big companies were there, showing off to the assembled operators the machines they hope to sell them for next years' season. And my tip for the top for '91? It has to be the machine that was strategically positioned right near the main entrance of the hall – Race Drivin' from Atari Games.



This is the follow-up to Hard Drivin', which has been made a lot more difficult by the inclusion of such whacky items as hairpin bends on the edges of ravines, corkscrew roadways, split loops and so forth. Get the picture.

Actually, there's more to it than that. For a start there are a number of different cars you can choose from at the beginning of the game, the usual Sportster (Manual or Automatic), or the all-new manual Roadster and Speedster.

After this you have a new choice of tracks – the original track (yawn), the auto cross track (a bit boring unless you are into serious opposite lock) and the super stunt track (the big momma!).

There is also a fudge two player game – in that you don't play the game simultaneously, but player one has a go, then player two has a go, with the outline of player one's car weaving around the track.

Still, Race Drivin' has all the merits of its predecessor, with some frilly bits added – and is OK by me. The fact it



was the best game at the show, however, said more about the show than it did about this game.

Conservatism seems to be the name of the game right now, and although there are many fine new titles out there (plus a whole new breed of tedious mow-em-down titles), there aren't that many new ideas.

What happens when an industry runs out of imagination. Bring on the sequels Doris please! We've already talked about Race Drivin' (Hard Drivin' II to you). How about Final Lap II then – now exactly the same, only with three new extra tracks? How about Pang II – called Buster Brothers in the US? Two



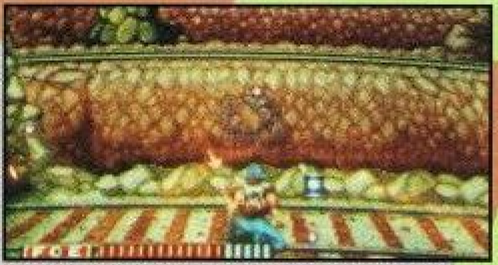
player now, with better graphics too, but essentially the same. Double Dragon III then, eh? Sounds like fun! The same sort of fun that Double Dragon I and II was, really.

And doesn't this sound interesting – The Majestic Twelve, brought to you by Taito. Ummmm – make that Space Invaders Mk V will you. Yes sir, Space Invaders is back – and the punters will flock to it like...like Lemmings to the Samaritans, I expect.

Here's another one from Romstar – Thunder and Lightning! Cough – doesn't that remind me of Arkanoid! Better cute graphics, loadsa sound. But Breakout!!?? Reeling from deja-vu, one stumbles into the Neo-Geo booth, only to see a game called Puzzled. Puzzled? You will be, as the thing looks remarkably like Tetris.

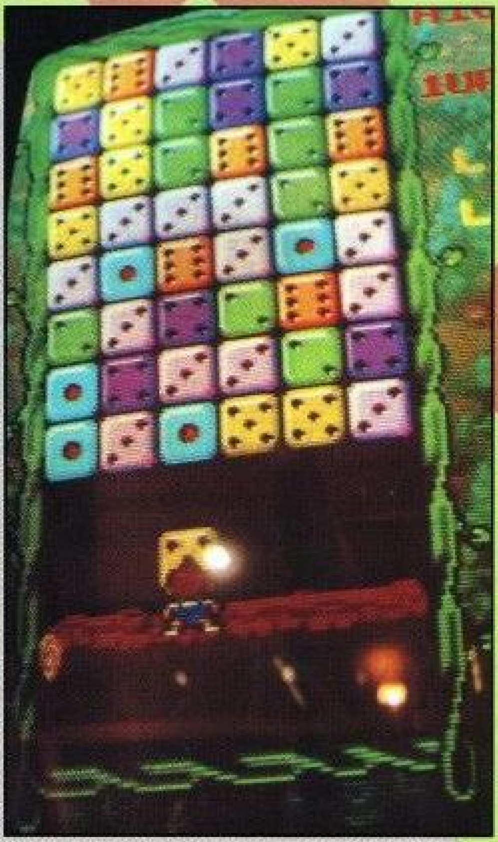
I try to find refuge in the Fabtech stand – surely these guys won't let me down. I examine the fare on display. That shooting game based in the Wild West, Blood Brothers. Surely we're talking about Cabal, here? Thank heavens they're showing a newish boxing





game called Pound for Pound, which doesn't appear to be either a follow-up or a rip off.

Then there's Ataxx on the Leyland stand – an interesting computerised Reversi variant. Nice one chaps. How about Pushman from those blaster specialists Air Sammy? A bit like that old Spectrum Holobyte title Soko-Ban, but a step in the right direction.



But my favourite PCB of the show was a game called Palamedies, exhibited by the Hot B Company Ltd. Call it a cross between poker dice and Block Hole if you will, but it looked good to me, John.

Simply, you fire dice up the screen at lines of dices that interminably make their way down the screen towards you. Hit like number with like number and that die disappears from the main display and appears on a display below the playfield. You are helped by this by the fact you can choose the number of the die you fire by cycling through 1-6 by pressing fire.

The aim of the game is to keep going for as long as possible – which is helped by making sequences and valid poker dice hands on the lower display. Making the sequence 1, 2, 3, 4, 5, 6, for instance, makes the lower five lines on the main display disappear! Seeing as the lines of dice come down the screen faster and faster progressively as the game's going on, it's vital you make these sequences and pair later on in the game and makes it a fine challenge of intellect and dextrous skills. Love it!

So, that was New Orleans. Where the arcade industry responded to the challenge of better and better home computer games – by giving us, by and large, more of the same. Think again chaps, or when the silicon chips are down, you'll be the guys that are out of business!

FABULOUS

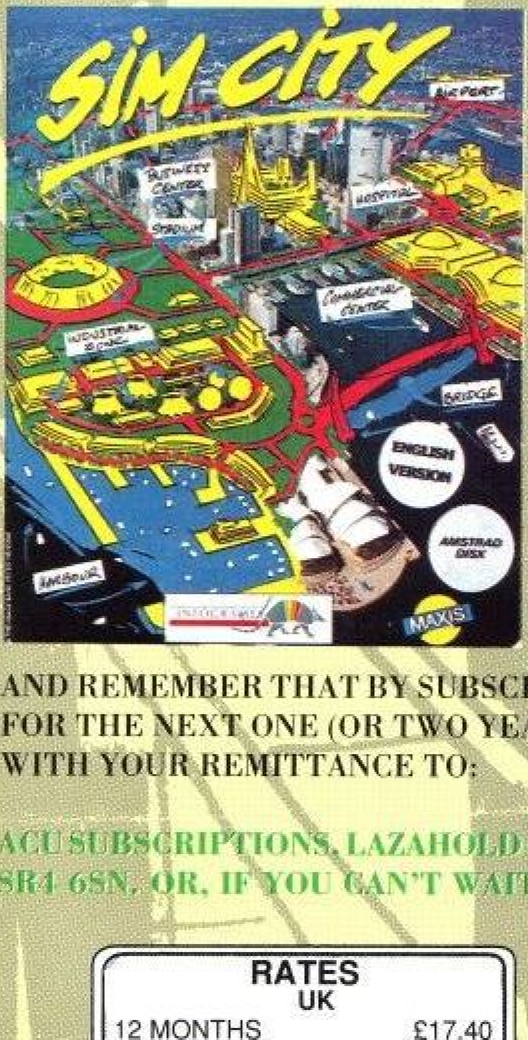
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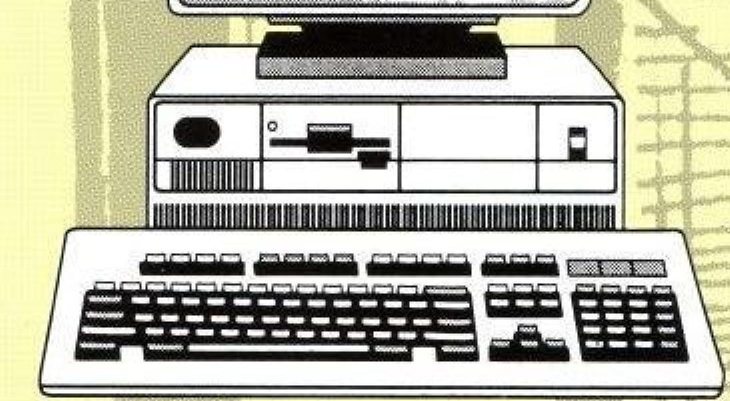
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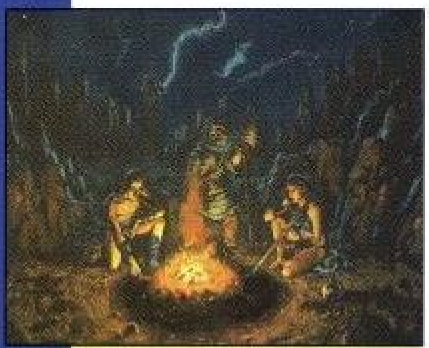
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1	(1)	Quattro Adventure	Code Masters
2	(5)	Quattro Combat	Code Masters
3	(4)	Guardian Angel	Code Masters
4	(7)	Quattro Super Hits	Code Masters
5	(NE)	Out Run	Kixx
6	(10)	A Question of Sport	Encore
7	(NE)	Jaws	Alternative
8	(NE)	R-Type	Hit Squad
9	(NE)	Target Renegade	Hit Squad
10	(6)	Run The Gauntlet	Hit Squad
11	(3)	Paperboy	Encore
12	(2)	Rastan	Hit Squad
13	(14)	Pro Golf	Code Masters
14	(NE)	Soccer Double	E&J Software
15	(NE)	Arcade Fruit Machine	Zeppelin
16	(13)	Daley Thompson's Olympic Challenge	Hit Squad
17	(NE)	Operation Hormuz	Alternative
18	(NE)	MQuattro Arcade	Code Masters
19	(9)	Shadow Warriors	Ocean
20	(16)	Pro Boxing	Code Masters

The Spy Who Loved Me

Bond is back and this time he's teaming up with the Reds to take out the maniacal Stromberg.

You know the plot already; two nuclear subs, one British and one Russian, have gone missing. Microfilm evidence suggests they may well have been stolen by the power-mad sub-aqua lover Karl Stromberg.

Teaming up with the desirable Soviet agent Anya Amasova, your task is to get over to Sardinia and rescue the kidnapped submariners.

It all sounds pretty easy and, to be fair, if you take this game at an easy pace, you shouldn't have too many problems with it. To start with, you get the chance of a little driving practice, as you and Anya make your way to the hotel.

You need to be a bit quick here, because you need to reach the hotel in time to catch a boat out to Stromberg's underwater palace, Atlantis.



On the way to the hotel, be sure to pick up the bonus 'Q's lying around. Get enough on the first three stages and you'll be able to buy Q's famous amphibious Lotus for use in the later levels. If not, you'll just have to keep going until you do.

Once you've completed your visit to Atlantis, avoiding piers, swimmers and other speedobats in the water, it's back to the hotel again, only this time Stromberg's on to your plans and he means business.

Beware of the mines on the road, as well as the pursuit cars and helicopters. On your way, hitch a ride on the Q-Truck, where you can buy that all important underwater equipment.

True to the film scenario, Anya is kidnapped by Stromberg and, after a savage reconnaissance in the Lotus sub, you need to get on your Wet Bike to bring her out before Atlantis is destroyed.

Pick up all the assistance you can from the special packages airdropped onto the water by Q and get blasint with your lasers and cannons as Stromberg's thugs come at you.

As far as it goes, The Spy Who Loved Me is a fine addition to Domark's Bond stable. The graphics are clear and well defined, with the usual neat sound effects and Bond theme tune to get you going.

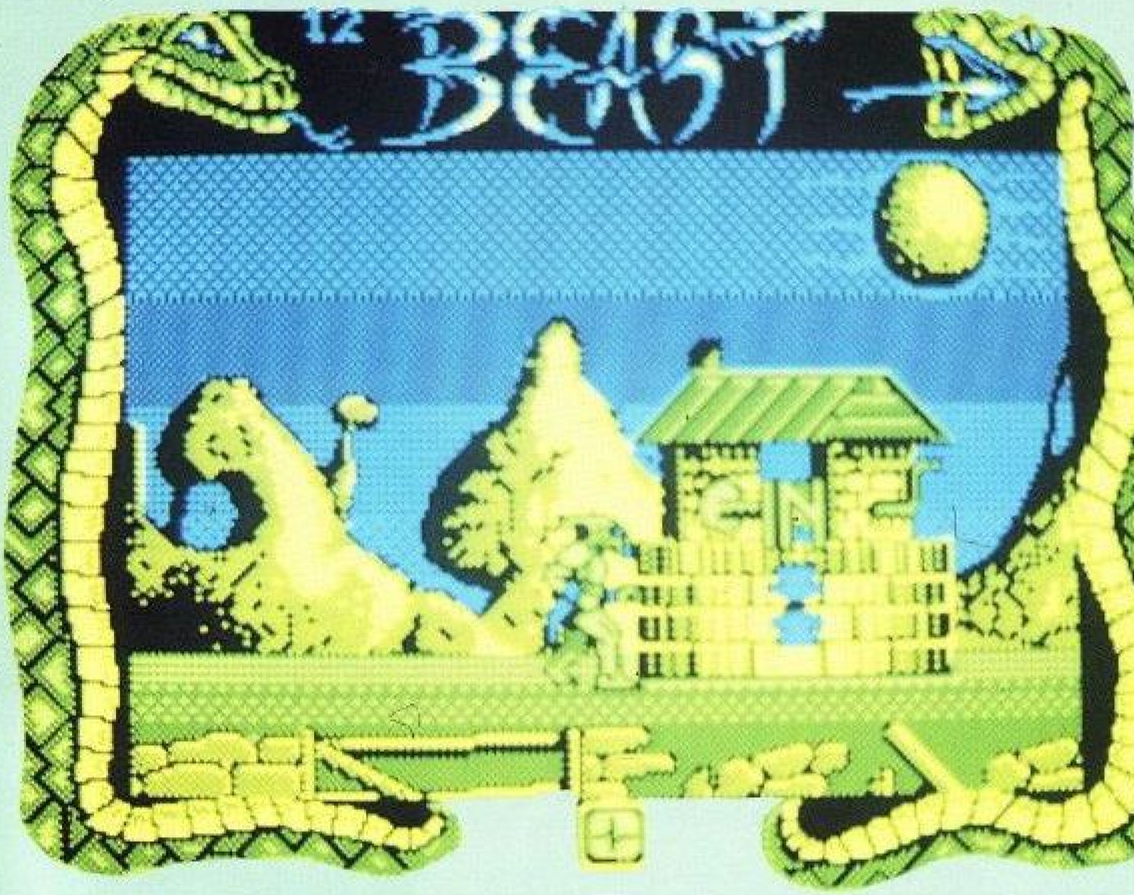
Controling the car/boat is fairly easy, but remember not to oversteer or you'll find yourself in the rough and in very hot water indeed. However, seasoned gameplayers may find it all over just a tad too quickly. By pacing yourself carefully, you can steer pretty much clear of most of the trouble and finish off with most of your lives still intact.

Nevertheless, in the fun stakes, this latest Bond bash should do well. If you've started a collection, The Spy Who Loved Me is a worthy addition.



Brad Fisher

ROUND-UP			
NAME	The Spy Who Loved Me		
FROM	Domark	PRICE	Disk £14.99 Cassette £9.99
80%	77%	78%	
GRAFFIX	SONIX	PLAYABILITY	VERDICT



Shadow of the beast

Taste the sweetness of revenge in your vendetta against the Beast Mage.

If you happened to catch a glimpse of the original of this game on 16 bit, you will probably remember thinking, as I did, what a real swizz it was that we couldn't get hold of it for the CPC. Well, thanks to some excellent conversion skills from the Gremlin team, we too can savour the excellence of this atmospheric masterpiece.

For many years, you have been the right hand of the monstrous Beast Mage, whose realm of blackness has overtaken the land bringing destitution and death to the inhabitants.

Unaware of your true emotions, the continual slaughter means nothing to you until, that is, you recognise an old face as it prepares to meet its maker.

Suddenly, memories flood through your being. That face belonged to your father and you have been manipulated by the Beast from an innocent young lad to become the hideous tormentor you now are.

With this knowledge now within your graps, your only thought is for revenge. Crushing the all-powerful Globe of Seeing of the Temple Masters, you move silently out into the night, prepared to meet anything the Beast might throw against you in your quest for blood.

Despite the conversion down onto 8-bit, Shadow of the Beast has lost none of its chilling atmosphere. The deep tones of the backdrops stand out marvelously in this haunting land of evil.

Starting off, you find yourself exposed in a hostile wilderness, with a well offering the only seeming protection from attack. However, if you haven't got a key, this will prove to be a dead end.



As you fight your way through your quest to locate the Beast in his home surroundings, prepare to be stunned by the vast array of the Beast's armoury. Dragons, fireballs, bats, mutants, you name it, they're all out there to get you and all you have to beat them off to start with are your hands and feet. Luckily, they are quite a formidable defence, though as you progress and meet up with even weirder creations from Hell, be sure to locate and use the special weapons you'll need to dispatch them to doom.



Each tim you come into contact with an enemy, your heart rate will increase until it finally bursts, killing you instantly, so ward off the baddies carefully.

Keep your eyes open for artefacts and keys that may come in useful later on as you enter the Beast's Lair, and make the most of any strength restoring potions you find. You will need all the help you can get to get through the various regions on your way to the Beast.

Your grisly character is easily controlled and, with the use of excellent parallax scrolling, Beast is an absolute joy to play. It is certainly different to most of the games on the market and well worth buying.

With the atmospheric soundtrack bringing you further into the evil land, Beast will certainly prove very, very difficult to put down.

Chris Knight

ROUND-UP			
NAME	Shadow of the Beast		
FROM	Gremlin	PRICE	Disc £14.99 Cassette £9.99
88%	87%	91%	TNT
GRAFFIX	SONIX	PLAYABILITY	VERDICT



MIDNIGHT RESISTANCE

Take on the ruthless Commissar in a desperate bid to save the world.

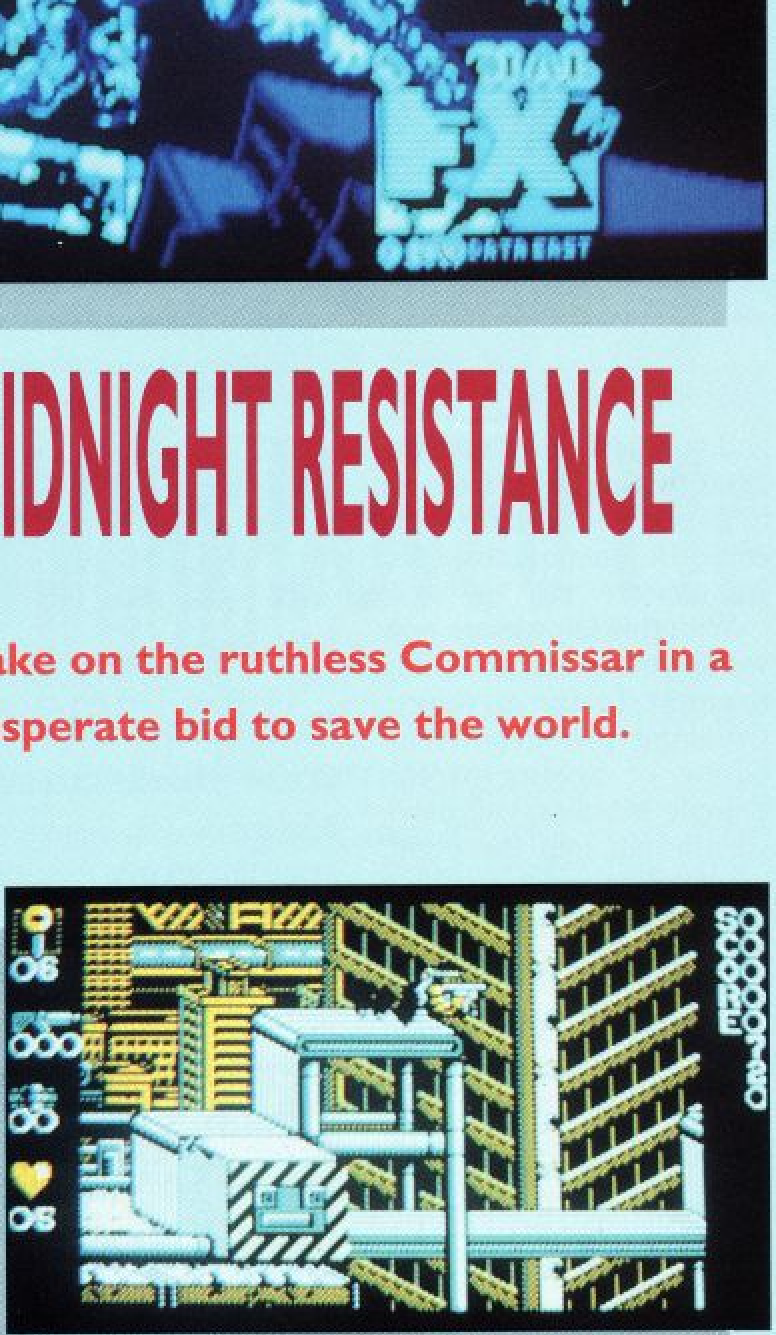
Time to pick up your machine gun again as the crazed megalomaniacs prepare to take over the world. You're fighting not only for democracy, but also for your own family in this all-action shooty from Ocean.

The evil forces have kidnapped your entire family, including your world famous scientist grandfather. Using his weapons research know-how, the Commissar intends to force the world leaders into submission and exert his will over the Earth.

Only you are brave enough and strong enough to get out there and attempt to put things right. Can you rescue your family before it's too late? You'd better!

King Crimson is the maniac, and by the looks of the forces he's got at his command, you're going to have to be good to fight your way through.

Over nine levels of frantic action, be prepared to face the worst as Crimson throws everything he's got at you. To start off with, things don't look too bad. Use the jeep for cover as armed combatants leap towards you. Scale the turrets and knock out the gun emplacements before taking on the first of many super-charged tanks.



Keep a calm head on the killing fields, as some of your enemies may drop keys when you've finished them off. You can only carry six at a time, but once you've located the weapons room at the end of each level, they'll come in very handy to supplement your armoury, even if they were stolen from your more unfortunate predecessors who failed.

As you progress, be sure to pick the right weapons as you come up against the lethal circular saws, mechanised snakes and some awesome airborne fighters amongst others, on your way to Crimson's final hideout.

The game could be a little bit more colourful but the scrolling is smooth, with more than enough action to keep you busy. Controlling your character is easy to get used to and with the crawl option, you should be able to position yourself nicely, to avoid being shot while you deal out death.

Listen out for some very realistic explosions as the mechanoids go up in flames but be careful not to get carried away in the attack. You only have limited amounts of ammo for each of your weapons, so use it wisely.

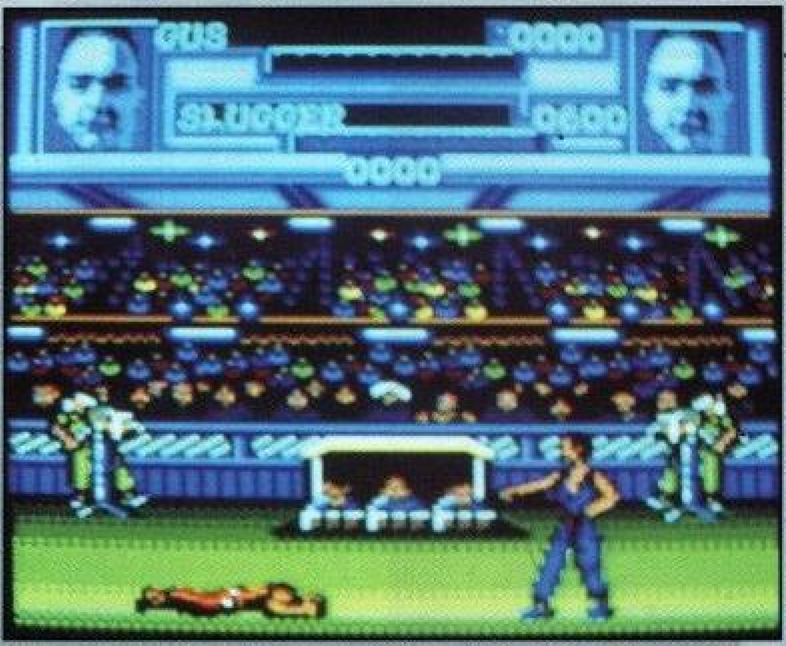
To change what you're using, simply press the space bar and you're in a whole new ballgame.

If you like your action hard and fast, then run hell for leather through all nine levels of this furious shoot-em-up and you'll certainly get your money's worth. The gameplay is varied, the opposition is formidable and you'll need to play it a few times before you work out the best moves to see you through the early stages.

Brad Fisher

ROUND-UP			
NAME	Midnight Resistance		
FROM	Ocean	PRICE	Disc £14.99 Cassette £9.99
80%	84%	82%	CURRY
GRAFFIX	SONIX	PLAYABILITY	VERDICT





ORIENTAL GAMES

Ah so Grasshopper. Are you ready to leave?

This is it, the big one. Wrapped up in this neat package is just about everything you wanted to know about mastering the mystery of such exciting oriental sports as Kendo, Kung Fu, Sumo and Karate. Roll up at the door to the fighting arena, enlist as a competitor, on your own or with as many as three of your friends, and be prepared to take a fair few knocks as you battle it out to become overall victor in the Oriental Games.

Each event is staged separately and you start off as one of sixteen entrants on your way to the gold medal. Before you do anything however, have a good look at the instructions manual in order to decipher the many complicated moves involved in each event. If you don't, you'll soon find yourself on the deck in the first round and a mere spectator as the results of the later rounds are displayed before the eventual Gold medal winner is announced.

In the fighting arena, keep a close eye on your portrait above your health status. It'll soon let you know if you're hurt, even if you can't see your strength rapidly diminishing.

The idea is to reduce your opponent's strength to zero, or score 1,000 points to win. If you succeed, you progress to the quarter finals and onwards.

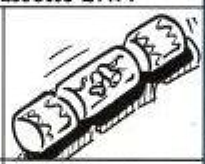
When you do win, the old adrenalin certainly gets flowing, but if you fail, it isn't half frustrating having to sit and watch the other results before entering your name all over gain for the next event.

Getting further into the games, we've probably all had a go at Karate and Kung Fu on the screen, but have a bash at the old Sumo wrestling for something a little different. Use the controls to grab, slap and push and do your best to put your opponent on the floor. It's well worth the effort.

All in all, Oriental Games is a pretty neat collection, with the four different sports offering just enough variety to keep your interest. The sports are pretty tough to master at first, so don't be put off early in the games. Just to see your name up there at the end along with the greats is reward enough to keep you plugging away.

With some colourful graphics and a very atmospheric oriental melody in the background, along with some realistic grunts and cries, Oriental Games should provide an excellent alternative to lovers of the Gentle Arts, as well as to all those fed up with your run of the mill Ninja beat-em-ups.

John Taylor

ROUND-UP			
NAME	Oriental Games		
FROM	MicroProse	PRICE	Disc £14.99 Cassette £9.99
80%	78%	82%	
GRAFFIX	SONIX	PLAYABILITY	VERDICT

Golden Axe

Death Adder rules in darkness and only the mighty alliance of warriors can break his vice-like grip over Yuria.



Yuria, once a land of peace and plenty, has been defiled by the monstrous minions of the evil reptilian Death Adder. Innocent citizens have been slaughtered, the king and beautiful princess are held hostage and the only chance of salvation for the country lies in an alliance of warriors from the farthest corners of the land.

First of all, there's Ax-Battler, a ferocious barbarian from the plains, whose mother was cruelly put to death by Death Adder's soldiers before his eyes.



Then there's Gilius-Thunderhead, whose brother met his death in the defence of their beloved mines at Wolud.

Finally, there's Tyris-Flare, the last surviving Amazon warrior Queen after her tribe were put to death by the reptile's minions.

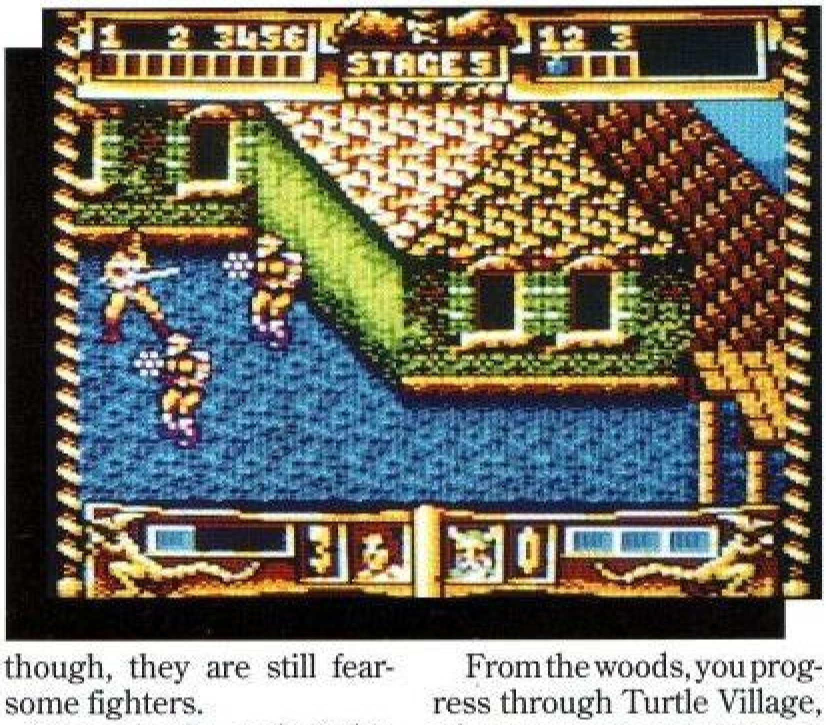
As you can imagine, none of these characters are over-fond of Death Adder, so choose which character you want to play and move off to gain revenge in the fiercest way you can imagine.

Each of the warriors has his/her own special form of magic, which will come in very handy as you progress. Ax-Battler commands the awesome Volcano Magic, Gilius the Lightning and Tyris brings up the rear with some pretty hot Fire Magic.



OK, all set? Off you go then. The first thing you will need to do is master the controls. Some of the sword swipes and jumps take a little getting used to, but once you've mastered that back jump, downward sword swipe, you'll see it was well worth a little practise.

You start off your mission to destroy the Death Adder and rescue the royals in the woods. Here, you'll meet some of the Reptile's lowliest minions. Don't be too casual



though, they are still fearsome fighters.

Towards the end of this section, be prepared for the Twin Sumos and the twisting Lizard Woman, you'll need to be on your guard to survive.

From the very start, the graphics are stunning, with some marvellous backdrops in lush woodland colours. Scrolling is smooth and the way forward is indicated by a flashing sword and the word 'Go' once you've finished off each set of baddies.

Along the way, keep your eyes peeled for magic pots. Use them sparingly to deal out some pretty hefty blows to the enemy and chase after the elves to make them drop more. The more magic pots you collect, the more powerful your particular form of magic spell will be, so make sure you work hard on the bonus stages.

From the woods, you progress through Turtle Village, where you encounter meaner thugs as well as some ugly looking beasts called Bizarrians. Destroy their mounts, jump aboard and use their wicked tails to finish off Death Adder's men.

A brief look at the map tells you where Death Adder is and your next move is over the long and perilous bridge to Eagle Island. Keep your wits about you as the horrifying Skeleton Swordsmen attack, then make your way through the cobbled streets, beating off wave upon wave of evil enemies to take on Death Adder in the castle.

Golden Axe is a magnificently devised quest. The action is extremely diverse and you'll certainly find more



adversaries than you bargained for.

Starting off with three lives, your strength is divided up into units. Each time you take a hit, you lose strength, so if you happen to see an Elf scurrying around, nudge him and see if he drops a handy strength bar.

One of the nicer points of the gameplay, is the coin-op style credit counter. If you are unfortunate enough to lose all three of your lives, never fear, you've still got two more credits to continue with. Believe me, you will need these.

If you play the two player option, each player gets two credits to start with – pretty fierce firepower, and with your collected magic, you can build up a pretty formidable fighting front.

One thing to remember, Elves aren't always good. While you take your rest at the end of certain stages, take care that they don't sneak up behind you and try to steal some of your magic back.

Golden Axe is an excellent arcade-style adventure, guaranteed to addict you after only a couple of screens. The choice of three warriors allows you to experiment with completely different fighting styles, even if you have already completed the game with one of the characters.

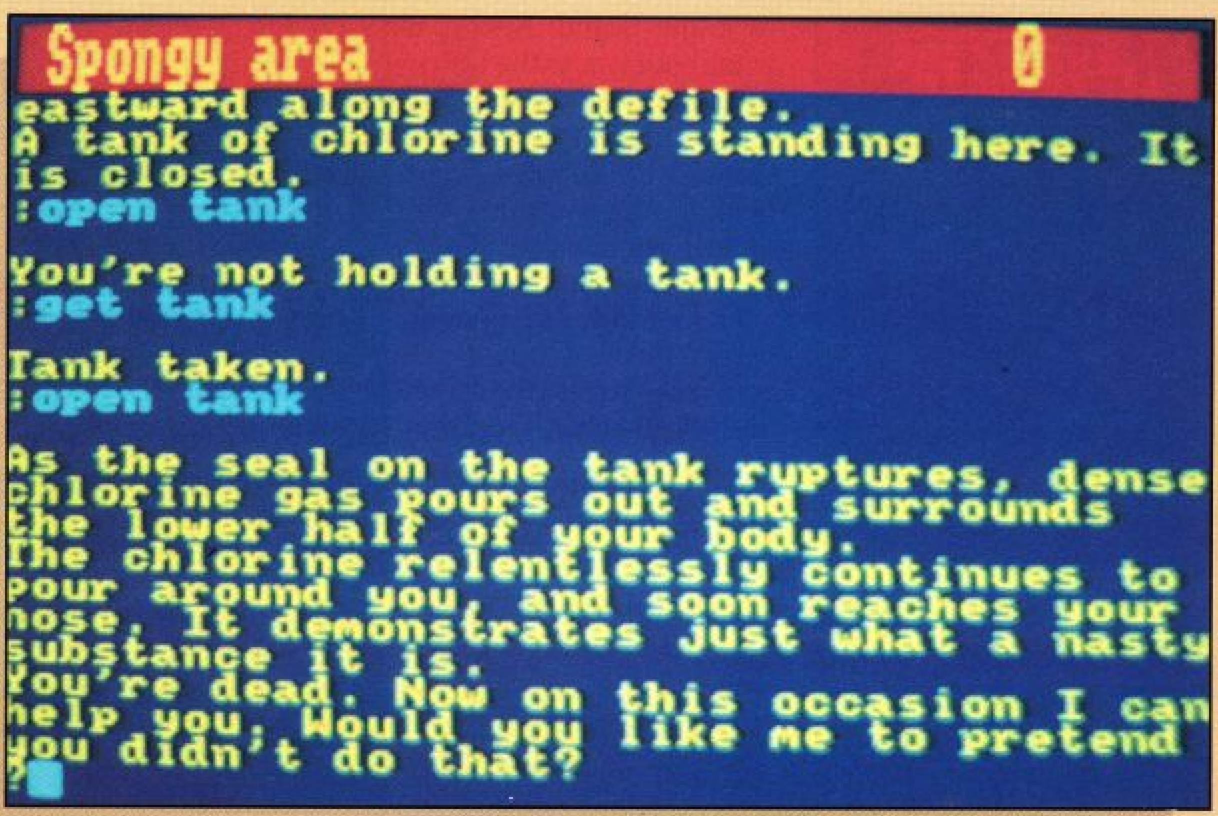
The gameplay is stylish and, even if the rescue of the damsel in distress and her father is a well-used scenario, there's more than enough diversity of action to make this offering a guaranteed success and one to go out and get as soon as it hits the shelves.

Brad Fisher

ROUND-UP			
NAME	Golden Axe		
FROM	Virgin Games	PRICE	Disc £14.99 Cassette £9.99
90%	88%	93%	GOLD
GRAFFIX	SONIX	PLAYABILITY	VERDICT

Return To Doom

Adventurers be warned, Doom is no happy haven for the lighthearted.



Seasoned adventurers will no doubt be well aware of the Doom Trilogy from those masters of intrigue at Topologika. For the uninitiated, however, this is a masterpiece of text based action, of which Return To Doom plays the second part and a cracking second part it is too.

Receiving distress signals from the good ship Galapoxi upon the surface of Doom you, as the only person to have escaped from that God-forsaken place, are the perfect choice to go in there and rescue the survivors, one of whom happens to be the Ambassador of Regina.

So, off you go in hot pursuit, landing your craft in a small clearing in the middle of a humid jungle. Now it's up to you.

A quick scout around your immediate vicinity will quickly show you there is more to this adventure than meets the eye – more danger and more puzzles to solve.

Return To Doom is a monster of a game and with only 100 points to be gained from start to finish, you'll be hard put to gain a decent score.

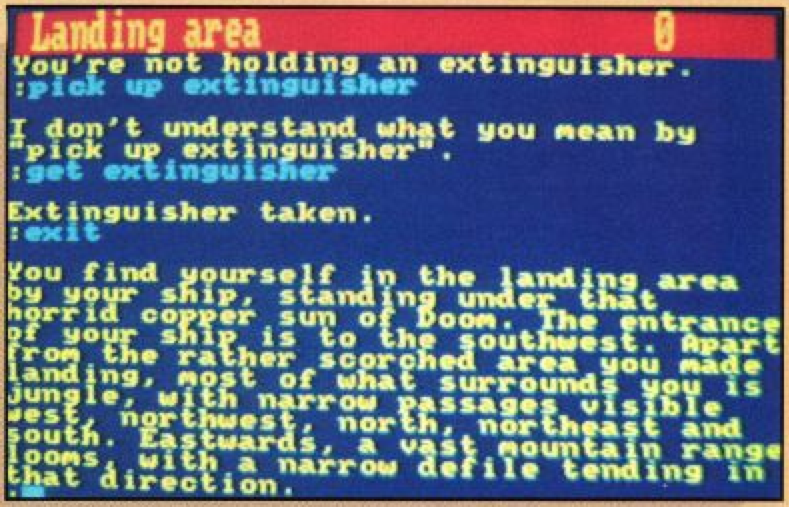
As you start out, you will soon discover plenty of objects to be picked up. Some are essential, while others will bring certain death if you try to reach them. One useful tip to be going on with – that cuddly Boogatiger isn't quite as cuddly as it seems.

The first part of the game forms a sort of time trial as you attempt to pick up all of the pieces you need to progress in time to catch hold of some vital information for later use. Take too long and you miss out, leaving you well and truly stuck.

After a few trials and errors, you should work out which pieces to use and which will come in to play later in the game. Then it's off on the trail again, which will bring you into contact with a giant rat, a dog, a computer, a maze that isn't (if you get my drift), cyclones and all matter of different obstacles which you need to solve in order to rescue the surviving crew of the shipwreck.

Remembering passwords and key letters, you'll find yourself thrown through alternative universes on your quest to succeed, and the save/load option will soon begin to play a major role in your adventure. Use it wisely before trying out rash moves, it could save your life and a lot of time starting from the beginning again.

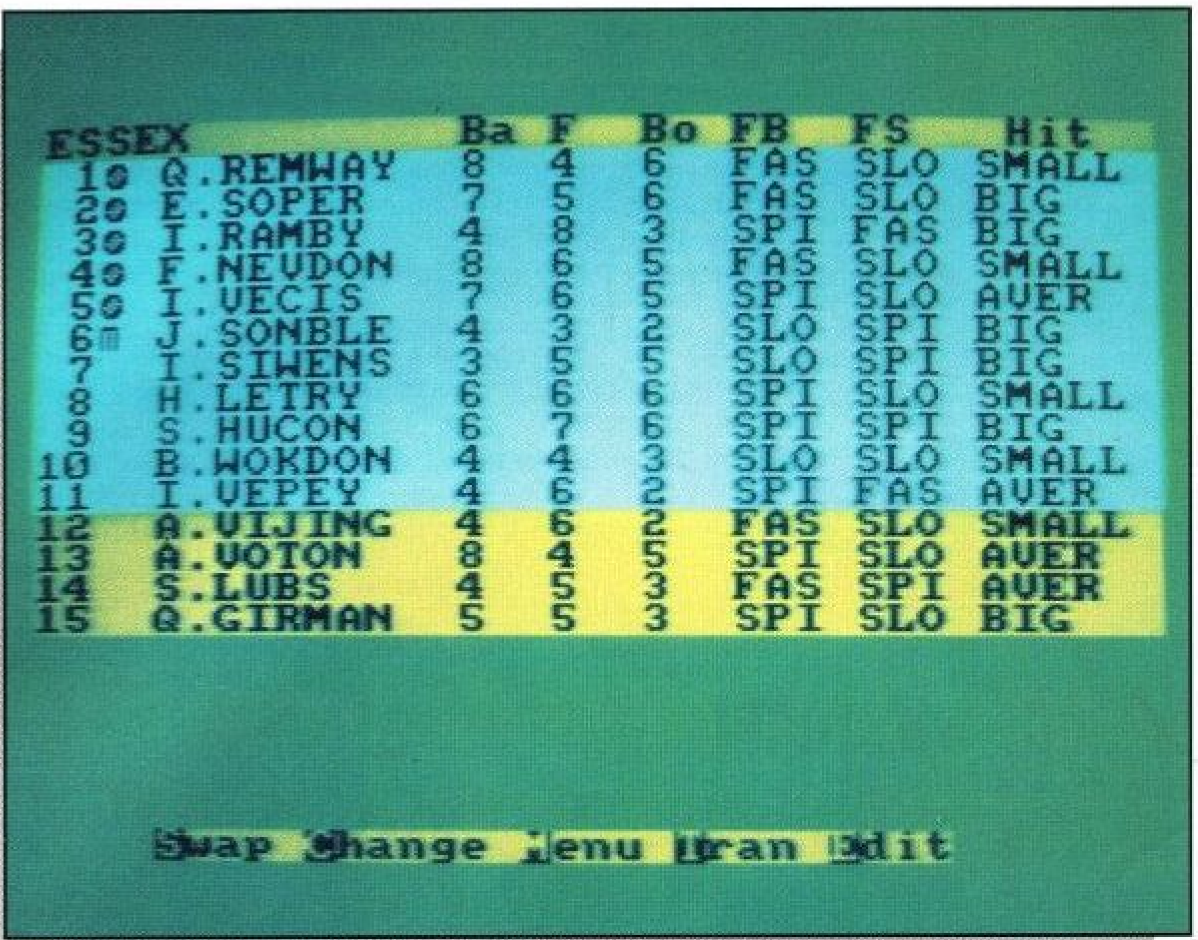
As a text-only adventure, Return To Doom has to be one of the best, if not the best, offering of the year. The scope of the game is immense and, despite it's advanced difficulty level status, you should be able to see your way through it with a little luck and a lot of common sense.



You're on your own, though if you manage to meet your initial deadline, you may get some helpful advice. One more thing, do unto others what you would have done unto you. In other words, help someone, or something out, and you may find your favour returned later on when you need it most.

Chris Knight

ROUND-UP			
NAME	Return To Doom		
FROM	Topologika	PRICE	Disc only £19.95
N/A	N/A	89%	
GRAFFIX	SONIX	PLAYABILITY	VERDICT



Cricket Captain

...and with a glorious cover drive Allan Lamb brings the Ashes back home to England for the third successive year.

OK, wishful thinking again, but if we can't do it out there on the pitch, there's no reason why we can't do it within the confines of our CPC screens, is there?

Well, you may not be able to contest for the Ashes in this little package, but if you're into one day, limited over, League or Cup matches, or drawn out 5 day contests, then this is the game for you.

As the captain of one of the leading county Elevens, it's your job to maintain your team through both the John Player and Cornhill Assurance Leagues as well as the two cup competitions. It's a pretty tall order and you'll have to be on the ball at all times to come good.

The greatest aspect of this simulation is the sheer size of the menu options. You may well start off with a fairly solid side at the start of the season, but if you want to improve, you'll need to keep a close eye on every one of your players. How's their run rate? Are your bowlers hitting the mark? Should one or two of your regulars be rested to give some of the youth players a chance to shine? Well, a little honest competition for places never did any harm did it?

Using your scouts to your best advantage, put together the team you think will do the best on the day, taking injuries into account, as well as any new signings you may have acquired. Sorted it out? Right, get out there on the pitch and do your stuff.

Each of your players may have a favourite shot or bowl, so use them wisely to accumulate the high scores, toppling your opponents at the same time with your demon bowlers.

At the end of the day, whether you win or lose, you can cast your eye over the scoreboard and pick out the best performances for future use. At the same time, take a look at the results coming in from the other matches around the country to find out where you stand.

Perform well, by using a good mix of seasoned and young players, and your directors will be happy. If not, it's back to the training ground to rethink your strategy.

Combining superb match action with excellent background pre-match strategy, Cricket Captain is a must for lovers of the sound of leather against willow.

The variety of options give you a real feel for the game, while the colourful game sequences let you see just how well your thinking works out. Howzat? Excellent.

John Taylor



	ROUND-UP		
NAME	Cricket Captain		
FROM	D & H Games	PRICE	Disc £14.99 Cassette £9.99
78%	72%	85%	
GRAFFIX	SONIX	PLAYABILITY	VERDICT

Budget Basement

Five more blasts to whet the inside of your wallet.

OPERATION HANOI

Campuchia is being held hostage by the evil despot Lee Ho Fook, with the help of a diabolical Super Tank and you, as an officer of Ching Lai's freedom army, are the only one who can save your kindred fellows from enslavement.

Armed only with your machine gun and some hand grenades, you must trek through the hostile jungle, over the Mekong River, overrun enemy garrisons and finally arrive at the port of



Cheduba, to take on the might of Lee's forces and take out the tank.

Along the way, collect extra ammo and health by shooting down supply parachutes from above, to help you to do away with the enemy.

Operation Hanoi is great as a shoot-emp-up, with some neat sound effects and three separate battle zones set against excellent 3-D combat action.

If you like your gunplay fast and furious, you won't go wrong with this one.

FOOTBALL CHAMPIONS



Yes, it's another offering for fanatics of footie management. Featuring all of the regular options to get your team up and running, this one also features some pretty smart extras to cater for the finer points of the game.

Take to the training fields to test our your tackling and dribbling.

One of the nicer points of the game is being able to keep a note of crowd attendances, watching the gate and checking on the capacity figures. The more people you can drag in to watch your sizzling ball skills, the more money you will have to buy that excellent new Midfielder you've had your eye on for some time.

Make notes of the job offers you receive every week, you never know just when the time could be right to leave. Remember, it's always better to leave than get the push.

If you like footie management, then this one should form a part of your collection. If not, you might find it a little dull.



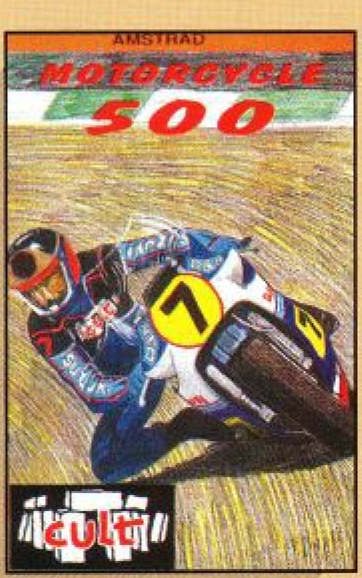
HAVOC

Take your pick from the American AH-64 Apache, or the incredible Russian Havoc helicopter and burn your way through seven deadly levels of air-to-air and air-to-ground combat.

Armed with unlimited bullets, but a limited amount of missiles, you must destroy all enemy planes to get to the Gunship at the end of each level, enabling you to land and recharge for the next mission.

In the hail of bullets, take care not to ground any ally planes or you'll lose bonus points and find your friends shooting at you too. Not a good move.

Along the way, collect as many bonus weapons as you can to recharge your armoury and then fly like crazy in this excellent aerial combat blast. It's well worth a look at.



MOTORCYCLE 500

Take to the strip in your supercharged 500cc powerbike in this non-stop test of your credentials as a team manager.

The number of options is vast as you try to keep two drivers on the track, finding the money to pay their fees, keeping the bikes in excellent working order and keeping the dirvers' morale up to bring home those all-important points to keep the directors happy. Take a flick through the list of sponsors and hope that your boys perform well enough to impress them. Without backing, your resources will very rapidly dry up.

With realistic breakdown and crash hazards confronting you, keeping two bikes on the track at all times is no easy task and you'll have to balance your funds carefully to succeed in this superb glimpse into the rough and tumble world of two wheel racing.

Again, this is a must for management freaks, but being better than the run of the mill offerings, Motorcycle 500 is a clever package to get hold of.

TURBO CUP CHALLENGE

Take a look at the excellent graphics in this offering for some real value for money action.

Based upon four real life racing tracks; Magny-Cours, Dijon-Prenois, Nogaro and Paul Ricard, the action starts the day before each race as you rev up your Porsche 944 Turbo for the practice race.

How well you do in this round will determine your grid position for the real event the next day, so don't treat it lightly. It's hard to come through from behind.

Each of your competitors will be trying just as hard as you to succeed so treat them with respect as you career around each separate track at speeds of well over 120 MPH.

Turbo Cup Challenge is an excellently presented game featuring some truly authentic action. For a budget release, it is certainly superb value for money. Go out and get racing.

Chris Knight

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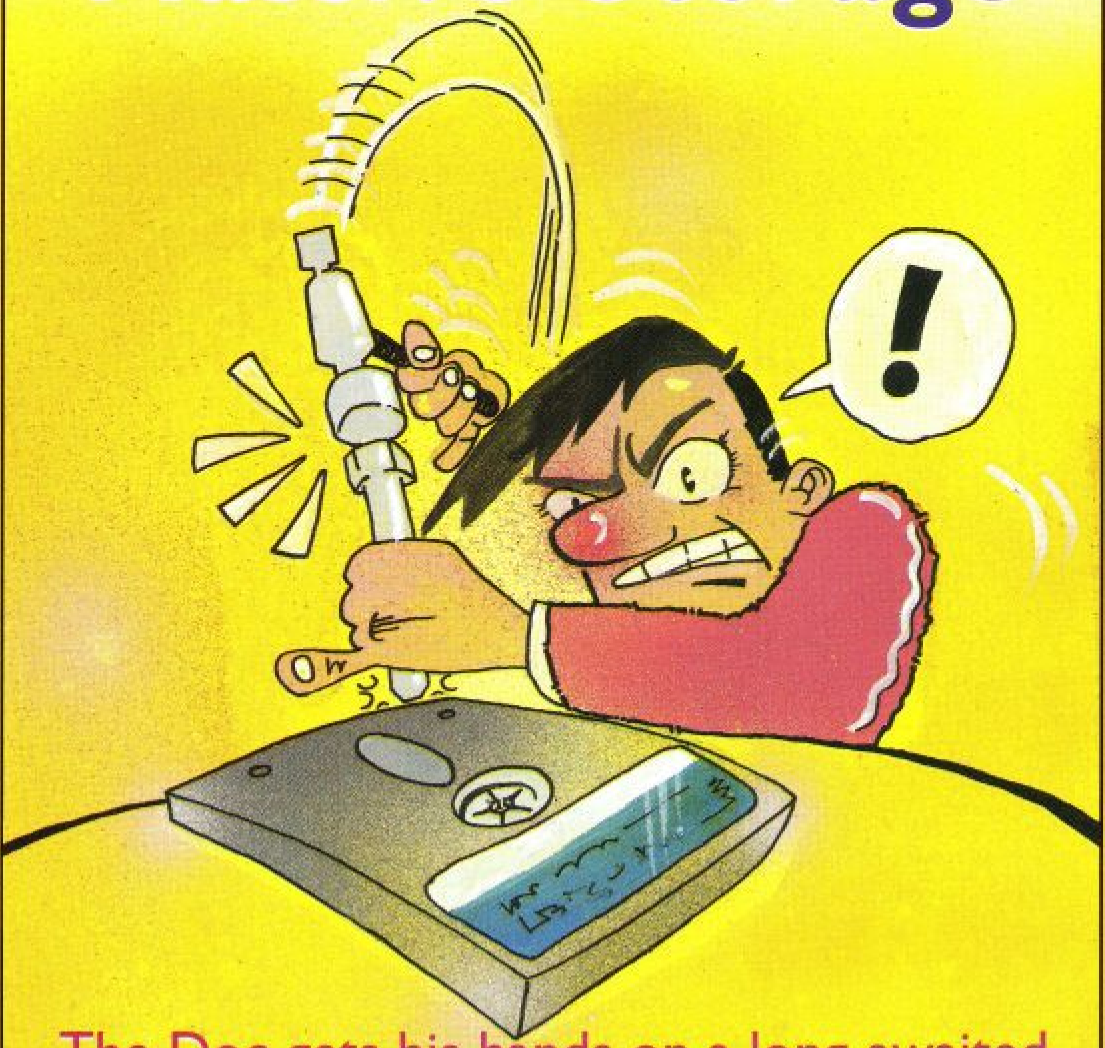
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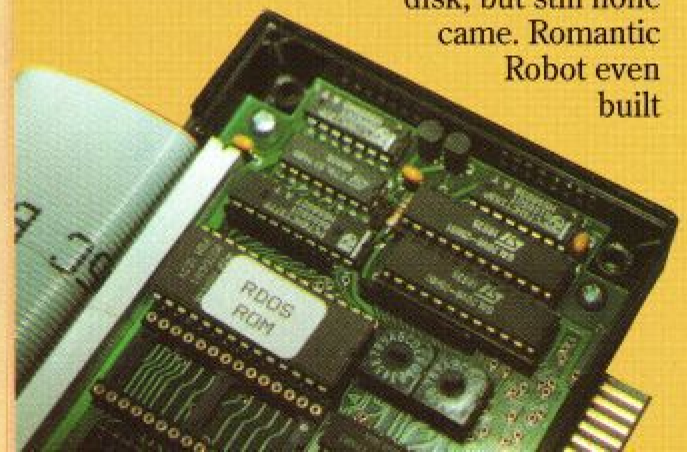


The Doc gets his hands on a long-awaited piece of kit, and examines its health.

A long time ago, in the mists of time, a chap by the name of Alan Sugar had the bright idea of creating a computer that the world could both afford and use. As in everything, though, something was missing.

A little while later, the PCW came along, the successor to Arnold, Alan's firstborn, and still something was missing. That something was a hard disk subsystem. The PCW got one, then another, then another, but the poor old Arnold never did, despite being the first in the queue.

Even people, clever people, who knew it was possible, made allowances in their software and peripherals for the fabled and much sought after hard disk, but still none came. Romantic Robot even built support for a hard disk into Rodos, and the world gasped, but none came.



Then, after the CPC range had been around for over half a decade, a small advert appeared in the back of a certain magazine. It mentioned 'CPC' and 'Hard Disk' in one sentence. Observant readers gasped. One observant writer made a few phone calls (and then a few more), and, one day, a large box arrived in the post.

Feverishly he tore at the wrappings, discarded the polystyrene chips, and pulled out a hefty, grey, metallic box, and a much smaller black box. The CPC Hard Disk had arrived!!

OK, enough already!! Let's get into this thing – after all, we've waited long enough. Before I get descriptive, a few caveats. Firstly, all the documentation that I have for the Dobbertin HD20 CPC Hard Disk is in German, a language in which I am totally illiterate. It therefore behoves me to tell you that there exist facilities in this package of which I know nothing, purely because I cannot translate the documents (which are with a German teacher being properly translated at this moment).

Secondly, I can never recommend that you spend upwards of £400 via a Visa card abroad, simply because there is no way that a firm price can be given. Those two points taken on board, let's get on with it.

The HD20 is not a small box. It's twice the height of a CPC 6128, and half again as deep, and roughly twice the width of a 3" drive. Its rear sports an on/off switch, and a kettle-type power input socket alongside a 25 pin data socket, from which the supplied lead connects to the unit's interface.

The front of the ventilated case sports nothing more than two small LEDs, one to indicate that power is available, and the other a bi- colour unit which flashes red when the disk is being written to or read from.

The interface is a slim device with the ubiquitous flying lead to connect to the edge connector of the original CPC range. Use with the Plus range seems to be precluded, but more of this anon.

Assembling the sub-system is merely a matter of putting the right socket in the right hole, and providing yourself with a power lead – that's right, none was supplied with the review model (even though we paid for it!).

That done, you may apply power to the setup – Hard Disk first, and then CPC. As the Arnold comes to life, an extra banner line informs you that XD-DOS has been loaded – nay, it has replaced the CPM rom that occupies slot 7. All of the normal functions of that rom are preserved, and a few new commands and facilities added.

We were told that the HD20 normally comes pre-formatted, but in our case, this was not so. Therefore, to get it up and running, I had to first alter CP/M2.2 to recognise the new drive(s). I write the plural since the unit is hard wired to divide itself into four logical drives of 5 megabytes each. Don't worry about that 'logical' bit – it just means that the operating system (either XD-DOS or CP/M) sees the single physical disk as four separate units.

The process for altering CP/M is fairly straightforward, even if you don't understand German, as the commands you use are all in English anyway. Once you've got CP/M 2.2 altered, you can then boot from it, and perform the format procedure.

Now, for those of you that have never come across a hard disk before, this is not at all like formatting a floppy disk. Hard disks require two kinds of formatting – low level and high level. The low

level format only prepares the surface of the disk's platters to receive data, and (in this case) also divides it into the four drives.

The High level format routine actually puts the sector and track information onto the platters, and makes the whole unit ready for use. The utility provided on the 3" disc that came with the unit performs both functions, and is as easy to use as any of the 'professional' utilities I've used on, erm, other machines.

Once the formatting process is complete (about half an hour in total for all four logical drives) you have drives D:, E:, F:, and G: available to play with – 20 megs in total!! That's a helluva lotta floppies!

There's only one more task to do before you try to actually slap some data onto the thing – you MUST run BADTRACK.COM under CP/M 2.2 (CP/M Plus use comes a bit later!) This program examines the physical surfaces of the disk minutely, and marks any bad bits as bad, so that they can't be used. Bad sectors and tracks are bound to exist – even on the most expensive systems (I have a 150 Megabyte unit in one of my PCs that has over twenty bad blocks in it, and many have lots more than that). Even so, you don't lose much capacity because of them, and in 20 Megs, what's the odd couple of k??

Now the disk was ready for use, I read what I could of the on-disc manual to find the bar commands that the system's rom has on board. There's all of the usual ones, plus |D, |E, |E, |F, |ATTRIBUT, |XDRIVE, |COPY, |HELP, |ROMON, |ROMOFF, |FAST, |SLOW, |AMSDOS, |GDUMP, |DIR128, |DIR64 and |FORMAT.

Most of these are self explanatory – the |D-G refer to the four logical drives, and switch between them, |ROMON and |ROMOFF turn individual roms on and off, |COPY allows you to copy files without resorting to PIP in CP/M (or NSWEEP if you're that way inclined), and so on.

I've yet to discover exactly what FAST and SLOW do, similarly DIR126 and DIR64. However |GDUMP dumps any screen to an Epson compatible 9 pin printer, and |AMSDOS kills XD-DOS and gives you back your Arnold as though the HD20 never existed. I'll stick with XD-DOS, thanks very much!

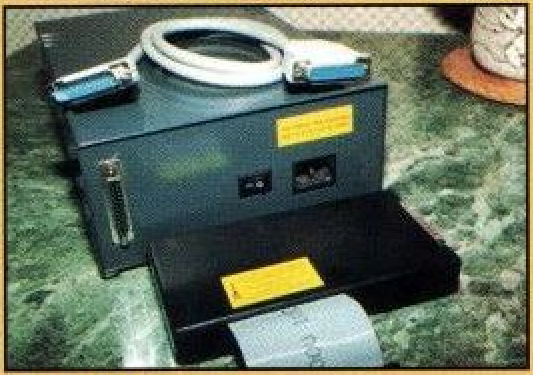
|ATTRIBUT follows the same functionality as SET in CP/M, allowing you to change the attributes of files on disc/k.

|XDRIVE appears to allow the use of an external drive of the 5_ or 3_" variety, but whether this is with the use of another of Dobbertin's utilities I can't say – stay tuned to Applications Advice for an update on this!!

Back to what I DO know!! When you boot a hard disk, it performs certain diagnostic routines – it has to find track 0, and, depending on type, check that it can find its last track as well. It must also perform a read test on track 0 to make sure it's working properly. This is where the only real problem I've had with the HD 20 exists. Often times, at boot up time, or when the Arnold is reset via <CTRL><SHIFT><ESC>, the heads perform their version of a Maori war dance, and the unit powers itself down.

The thing is, it isn't repeatable – there don't seem to be any particular circumstances that cause it, it's what's known as intermittent. Now, it is very annoying when this happens. I'm not used to hard disks that don't spin up and work first time. However, given the nature of this particular beast, I'm not 100% sure that it's a major problem. Why? Simply because the CPC is not a 'clean' machine. That is to say, it doesn't HAVE to boot its operating system from disk – that applies only when you boot into CP/M.

Therefore, it doesn't pose a major hurdle to operating the machine. Yes, it's very annoying if you have to keep trying to get CP/M to boot, but it does seem to get there in the end, and I've noticed that the number of incidences is decreasing. I also noticed that I have a bad sector marked in the boot sector of the disk itself, which may well be the root cause of the problem.



The beast itself!

That aside, its operation has been a joy. After some research involving a German/English dictionary, I managed to get CP/M+ onto drive E:, and now boot from the HD 20 with the command ':CPM,5', which tells the XD-DOS rom to look for the CP/M .EMS file on the hard disk.

Running MEX and ZMP, Protext (CP/M), and a whole manner of other CP/M programs from the HD20 has proved to be an absolute boon. I have long been prone to mislaying particular files or discs in amongst the better than 300 discs that I posses. Not any more. Stuff I want to use regularly is now on the HD 20, and it's a bit on the big size to be easily lost. It's also a damn sight faster to use than 3" floppies.

Also, I've had Protext on ROM working nicely with the XD-DOS rom and HD 20 – spell checking is a doddle, and quicker as well. I was disappointed that Brunword presented problems, though. The caveat has to be that if a proggy doesn't fiddle with undocumented calls, and uses the original OS the way Amstrad intended, it will work nicely. If not, refer to the vendor for them to provide an upgrade.

I've got to say that my research into this desirable piece of kit has been severely hampered by the German documentation. Fritz Obermeier, its supplier, tells us that the English documentation is well on the way. I really do hope so, since without that, most people will be floundering about in the dark to some extent.

Even without comprehensible instructions, though, the HD 20 has proved to be the kind of kit that many CPC users have lusted after for many moons. It provides some serious storage for the first time in the Arnold's life, and speeds up many operations, particularly under CP/M.

I doubt whether hardened games fanatics will have any use for the HD 20 at all – we're talking some serious hacking to get programs across to it for starters, and a fair bit more to get them to run satisfactorily. Anyone who uses their CPC, be it 464 or 6128, for anything like serious purposes, though, will have a field day with it.

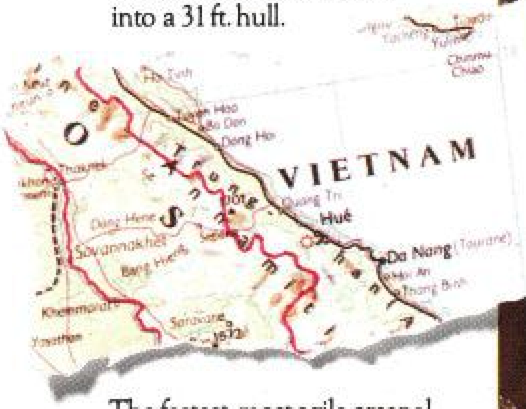
I'm chuffed that it supports all three operating systems on the CPC. I'm chuffed that it allows booting into CP/M in a variety of ways, including from HD. And I'm over the moon that I've got one!

As I said at the top of this review, I can't tell you to send money or credit card numbers overseas, but for the time being, that's what you'll have to do to get one. If you DO decide to put your toe in the water, I don't think you'll regret it one iota. £400 is a lot of money, sure, but, do some sums, and you'll see that you couldn't get that much storage on floppies for the same price.

Meanwhile, I've got a lot more work to do on the beast. There are lots of programs and peripherals out there that I want to test out with it. As I make progress, I'll keep you posted.

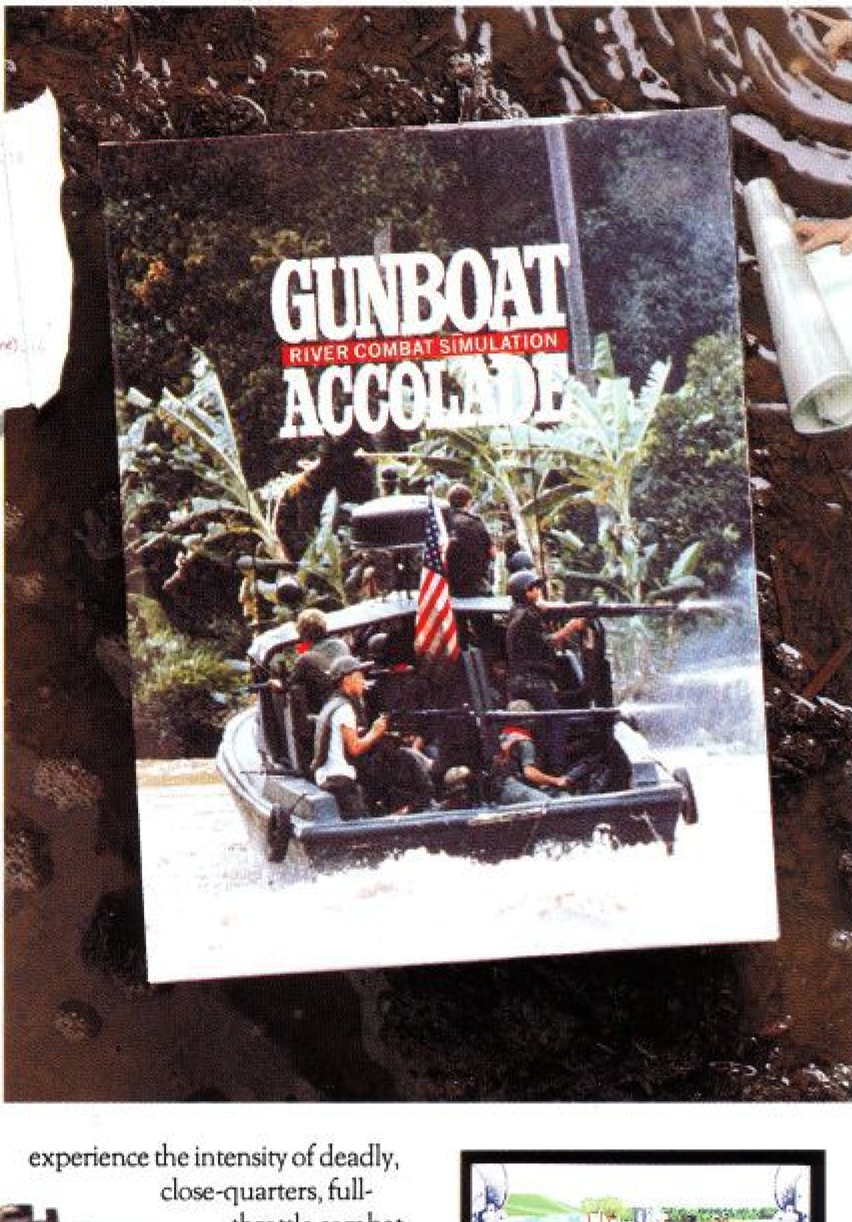
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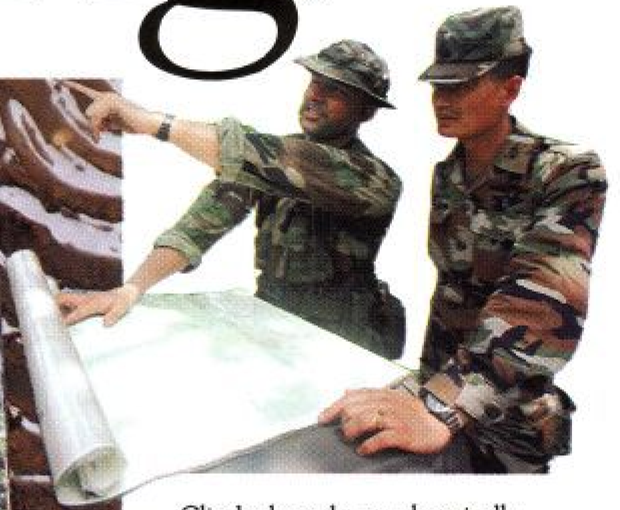
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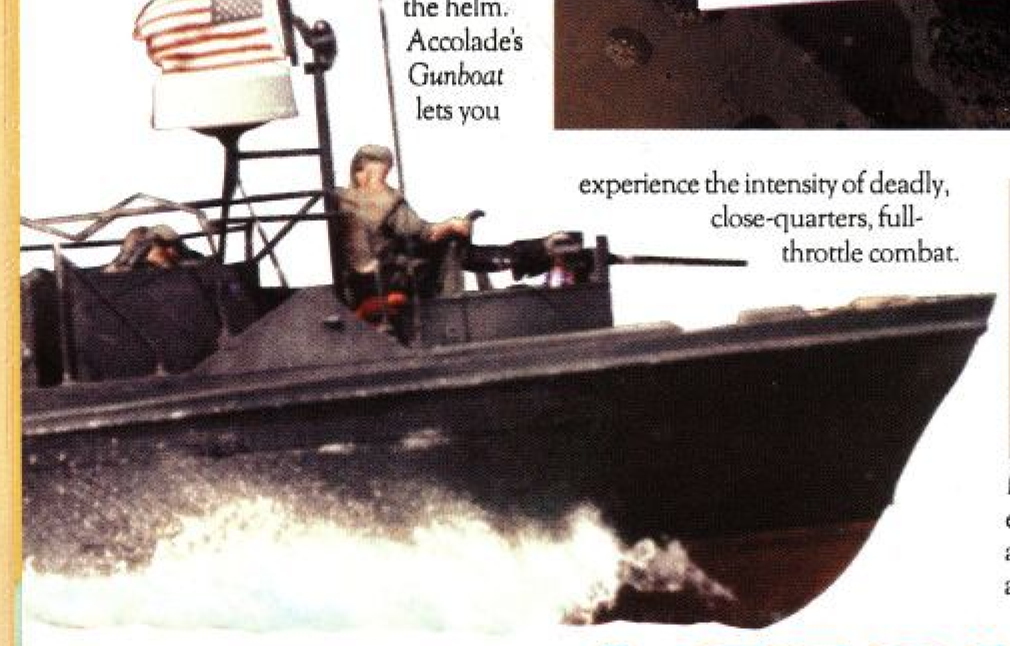
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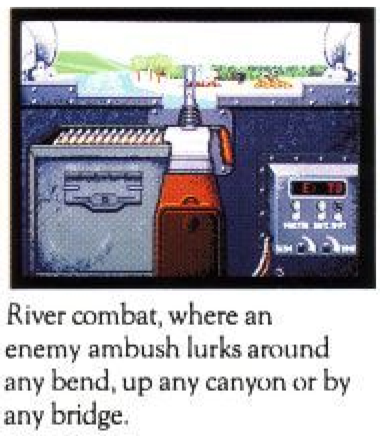


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HIPPY NEW YEAR

Hippy New Year, hackfans, and welcome to 1991. Still, that's inflation for you , I guess. I'm not going to spend ages looking back at 1990 ('cos I did that last month), no, I'm going to spend just a few lines.

These lines come from Ben "keen hacker" Darling of Goring, who pointed out that my Bombjack pokette line 14 should read:

14 load"bjcode .bin",6000

with two spaces between "bjcode" and ".bin", not like last time. He also corrected an erroneous (look it up in a dictionary) remark in the Kung-Fu Master poke, where line 80 should have said something along the lines of:

80 REM Change 14 in line 50 for no. of lives (not more than 99 though)

although that is a helluva long line to fit in one-column listings. Personally, I think it's all just a plot to make me look like I'm paranoid.

OK, so long 1990. Now we're going to get on with this year, and we're going to start off with Ben's really ghoulish poke for Ghosts 'n' Goblins. It's a left-handed, three fingered, anticlockwise crossover on alternate Tuesdays keypoke: Ctrl-Shift-ESC (otherwise known as the Vulcan Death-Pinch), gets the ol' infinite lives rolling, and is a wee bit faster than typing in oodles of listing.

Now what Ben would like in return is

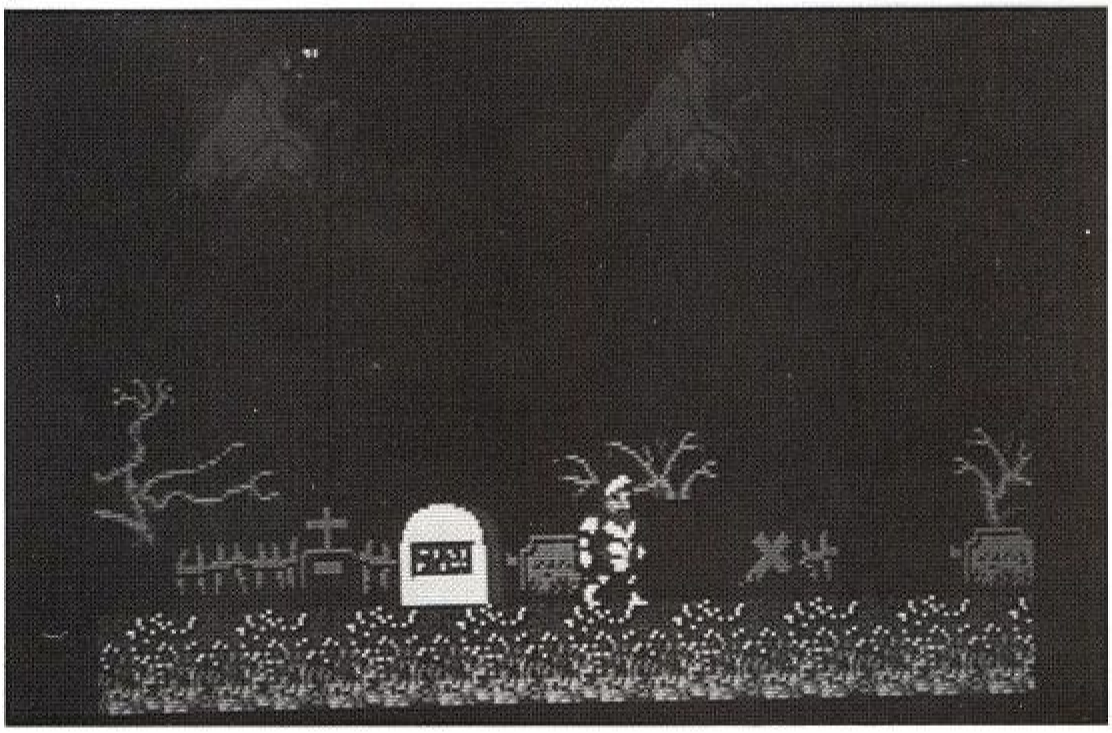
VAX brings us storming into 1991 with a host of new hacking delights.

an original pokette for Rick Dangerous, or a wee pokeykins for Renegade. He gets up to Big Bad Bertha, but as soon as the next level starts and the boss comes on, the boss shoots him. Well, you could always duck I s'pose.

Psst! You vant to by some feelthy passvords ? Duncan Nagle of Bristol has sent in a load, which I intend to spread as rapidly as possible. Nagle ? Did I read that right ? Sounds like some rustic Bristol passtime, as in: "Ahhrr zur, oi were Nagleing that night, oi were." Anyhow, I can't read the rest of the stuff too well, so please excuse any spelling cockledoodle-ups, and send in corrections with your own favourite pokes attached.

The Vindicator is the first one to be Nagled; the password for level 2 being OPPENHEIMER, and the third ENOLA GAY. I know the first feller, but I've never heard of the other guy.

The second one is for Cybernoid II, which we all know is cheated by redefining the keys to "ORGY", but I don't think I've mentioned that those folks without the manipulative skills of an octopus can then re-redefine the keys, and keep the resulting infinite lives.



Hairy Hackers

Duncan has another nice nagle, penned with his immaculate recycled biro, so brace yourself for a bit of driller hacking. These are the rock-solid coordinates for the rigs to be transported to, but if they don't work, rotate through 90 {*degree*} and try again:

Sector	X	Y
Alabaster	4496	4096
Amethyst	6400	6050
Aquamarine	5120	2896
Basalt	0930	2240
Beryl	7104	3512
Diamond	4096	3472
Emerald	3746	4096
Graphite	1680	6336
Lapis Laz	4096	3746
Malachite	5952	5026
Niccolite	0512	1698
Obsidian	6656	6306
Ochre	1808	6720
Opal	7394	7744
Quartz	2768	1792
Ruby	3746	2550
Topaz	3077	1310
Trachyte	4496	6912

Finally, the last Nagle (these do tend to be done at the end, you know) for Treasure Island Dizzy. If you press QASCP and [Space] to start the game (and wait until the little feller disappears), he gets to be invincible. The only snag being that you have to use the Z,X,K, and M keys to guide him.

Another letter in this yur bag (and keep 'em coming, folks!) Concerns Dizzy. One from Rick Hayward in Nottinghamshire, who has written in with some suggestions for Dizzy, and for some help. Presumably because he is tied up in Notts? Well, maybe the nagleing will help him.

He's got 27 of the 30 gold coins, and knows that no. 28 is on the "Long Jump Cloud", but can't get to it.

While stuffing these coins into his fantasial piggy-bank, Rick has compiled the following list of bits, and what to use them for:

Apple - Bribes the troll. An apple a day keeps the troll away.

Water - Puts out the fire. Famous for it, in fact.

Bread - Give it to the rat.

Boulders - These do not increase your bravery, you drop them in the pond near the docks.

Meaty Bone - Swap for boulder in armarog's den, then scat.

Keys - Use in the lift control hut. If you don't know how to use the keys, then you're beyond help.

Whiskey - Don't get it! It makes you drunk when you drop it. I drink a drop and get drunk.

Sleeping Potion - Sends dragon to the land of nod. I wonder what the whiskey does?

Bag - Lets you carry more.

Crowbar - Not somewhere for rooks to get a drink, you use it to open the well. You get it off Grand Dizzy, by the way.

Pickaxe - Used for hacking (yeah!). You hack away rocks in the mine to get the rug.

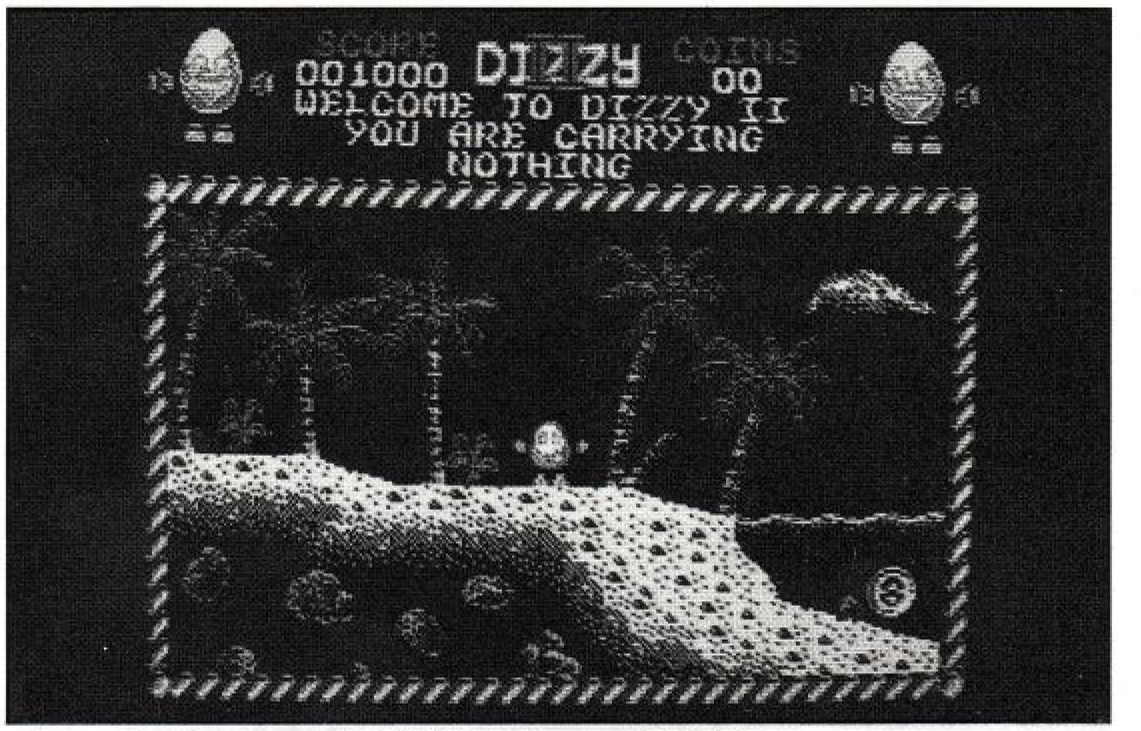
Pigmy Cow - Otherwise known as the mobile mini-moo. Take it into the upside-down world and swap it for the bean, or beap it for the swan.

Bean - You plant this in the, er, manure, and go fetch some water.

Door Knocker - This is in the castle, near the attic. It opens the door you need to go through to get the bucket that you need to get the water to water the bean with.

Bucket - Fill with water from the bottom of the volcano, and water the bean. Then stand back, or you'll get





a beanpole where you shouldn't have a beanpole.

Heavy Dragon Egg - Give it to the heavy dragon in the mine below the lift Control hut as a bribe to get past him or her. Didn't stop to look myself.

Thick Rug - Has an IQ of 2. Spread it on the daggers in the castle to make them safe.

When you're coin-hunting, just remember that some coins are hidden behind things: There's one up the oak tree near Denzil, for instance, on the second branch. Another one is on the middle right side of the lift control hut, and so forth.

In the docks, you can jump down between the purple and green boxes to the Illusion, or jump down the other side for a coin. From the green crate, you can get onto the crafty cloud.

Don't go for the other dragon's egg, by the way. It hasn't got salmonella or anything like that, it's just that the dragon will fry you, and serve you sunny-side up.

Those of you with vicious, nasty, mean streaks in you (as well as being ideal candidates for PE teachers), might want to kick Dozy. Kick him enough times, and he falls off the docks, and sails off into the sunset.

Nick also says to get the coin in the cloud castle before operating the lift.

Finally: The water at the bottom of the volcano won't kill you, you can jump the wide-eyed dragon's low flames, and the snap-happy gator snaps 3 times, so jump after the second snap. Now, can someone tell Nick how to get past the vampire? I'll say fangs very much in advance.

Thanx for the tips Nick, and by the way, there's no 'K' in Vax.

Moving on to other things, Graham Smith has written another massive missive, but I'm not going to do that this month. This keeps you in suspense, and stops me falling off the end of the page.

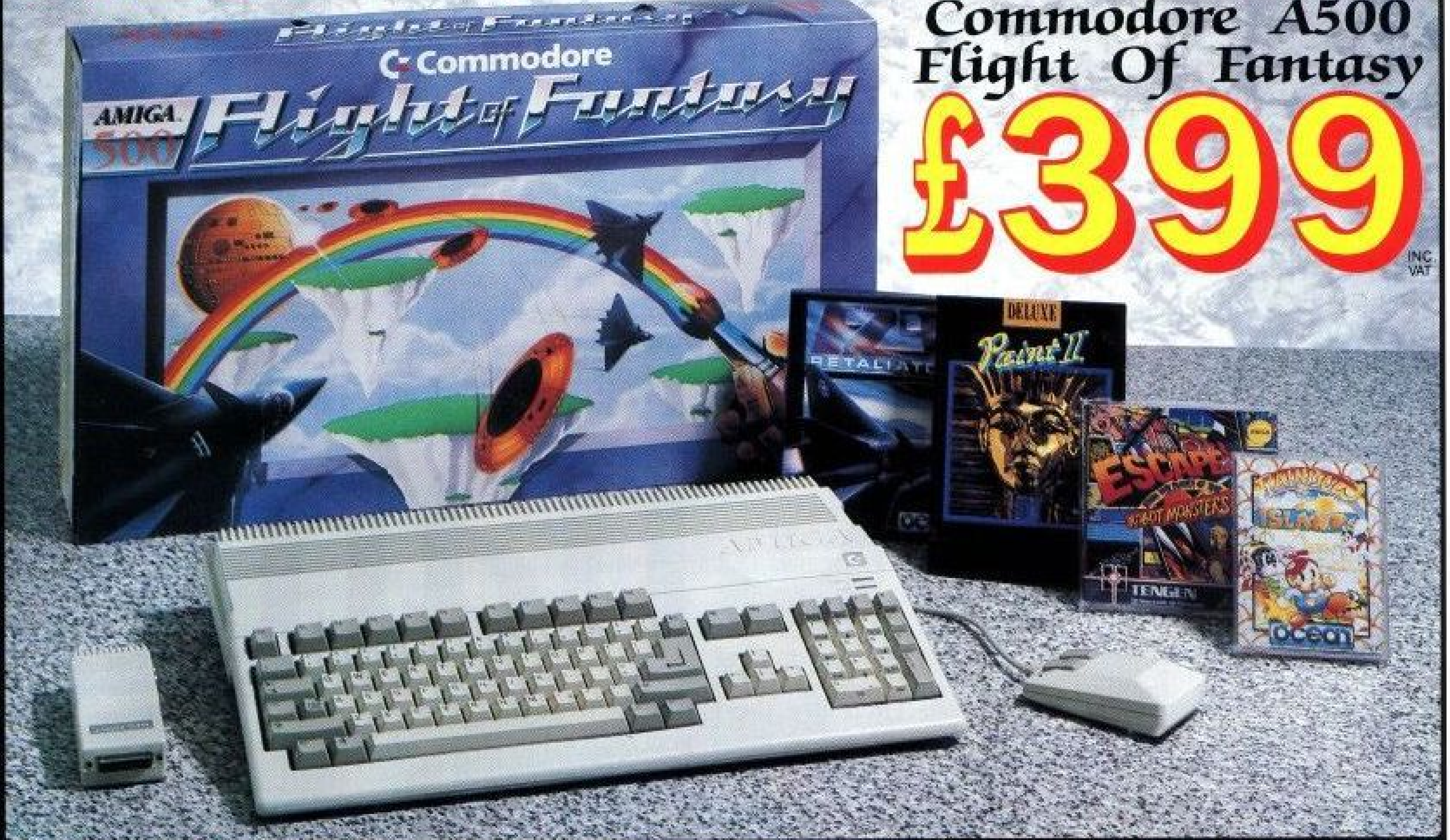
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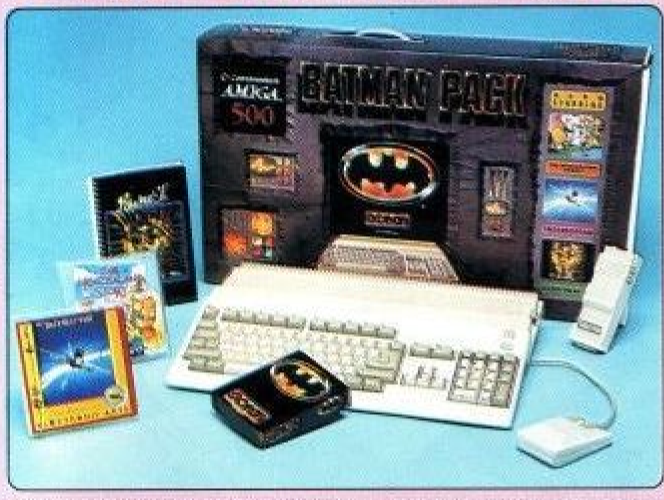
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All Change

In which the Doc examines Roms, Printers, and much more, and changes his address!

Is it Spring yet?? Have young men's fancies turned to love? Nah! Merry Xmas, each and all, and a Very Happy New Year. As it happens, the Doc has a prescription for you – a monthly dose of ACU combined with a letter written to Applications Advice.

By now, I assume that we're welcoming some new readers who are happily clutching their 464 and 6128 Plusses to their breasts, and wondering what on earth they can do with them. Well, folks, you can do an awful lot with them, apart from convincing mum and dad that you ARE doing your homework, and here's the spot to find out what!

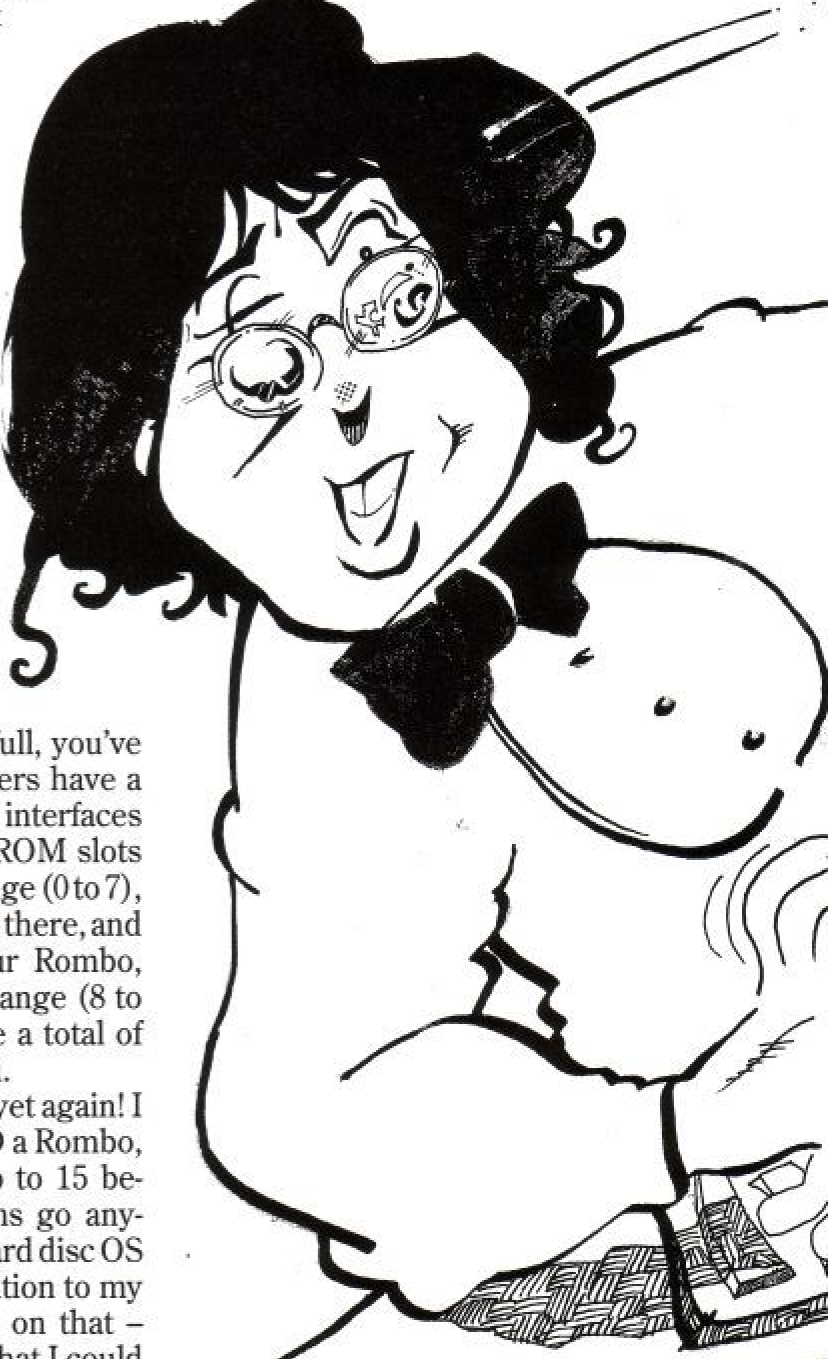
Straight into the first letter out of the grab bag, which comes from a chap rejoicing in the name of Michael Grant. This one's been passed over to me by my Bruvver Gordon (the loony who writes the comms column – he of wide brimmed hat and smouldering good looks – his description, not mine). Michael says:

'I have been hooked by Gordon Bates' Comms section and I have just about persuaded my mum that a modem is a worthwhile investment. I intend to get the Honeysoft HS-S1 RS232C interface. When I re-read my mags I found that the Cage ROM was the best viewdata software available. However, when I phoned up MJC Supplies (who were the only people I could find stocking it) they said they only had the Amstrad RS232C Cage ROM and the KDS version, both of which they said you have to put inside the RS232C to get them working. In your review of the HS-S1 it said the rom was put in a rom board (I've got the Rombo hanging off the back of my CPC 6128). In desperation I've come to you, could you explain whether the Cage ROM has to be fitted in a ROM board and what sort of ROM to get, where to get it and how much it costs?'

I can see where the confusion arises here, Michael, and it's quite a simple matter to get it sorted out. Firstly, forget the KDS version of the ROM – that's specific to the KDS RS232C interface, due to the fact that the unit doesn't conform to the Amstrad spec for RS232C in the way it handles CP/M and so forth.

That leaves what you call the Amstrad version, which I know as the Pace version (same thing, really, since Pace made the Amstrad RS232C units). This little sweetie ought to work with ANY interface which conforms to Amstrad's specs, as I believe the HS-S1 does. Therefore, this is the one to go for.

Now, on the subject of ROM boards and serial interfaces, quite honestly, it doesn't much matter where you bung the ROM, as long as it doesn't clash with any others. My own preference is to use the Pace interface (which, by the way, Pace are discontinuing, but of which they have stocks left – I'd suggest you give consideration to purchasing one of them should you be in any doubt as to the HS-S1) and slot the Cage ROM into my Rombo.



That way (and this applies more to 464 owners, really), you know exactly what you've got, and where it is, so you shouldn't make any mistakes – when the board is full, you've run out of space. 6128 owners have a little more luxury. The Pace interfaces I know and love have four ROM slots on board, in the low bank range (0 to 7), so you can bung four roms in there, and have another batch in your Rombo, which you set to the high range (8 to 15), which means you have a total of twelve slots available to you.

Frankly, my setup varies yet again! I have a KDS rom board AND a Rombo, covering all of the slots up to 15 between them. No other roms go anywhere else, except for the hard disc OS rom which is the latest addition to my desk. I could even expand on that – each rom is switchable, so that I could (in theory) fiddle with DIP switches and links, and shuffle roms about as I see fit. As it happens, I have no need to,

but the possibility is there. Now, as to buying the Cage ROM, I'm afraid MJC has a monopoly on them at the moment. One of the partners in the ROM is a chap by the name of Ian Hoare – in fact, it was his idea – and he now lives in the South of France. 'tother partner is one Dave Gorski, a comms programmer of some note. Unfortunately, neither can do anything without the consent of the other, so I've been unable to source new ROMs. Be of good cheer, though, because I'll be in contact with Ian by the time you read this, to try to set up a way of re-releasing the ROMs. It's a matter of demand, but I'll do what I can.

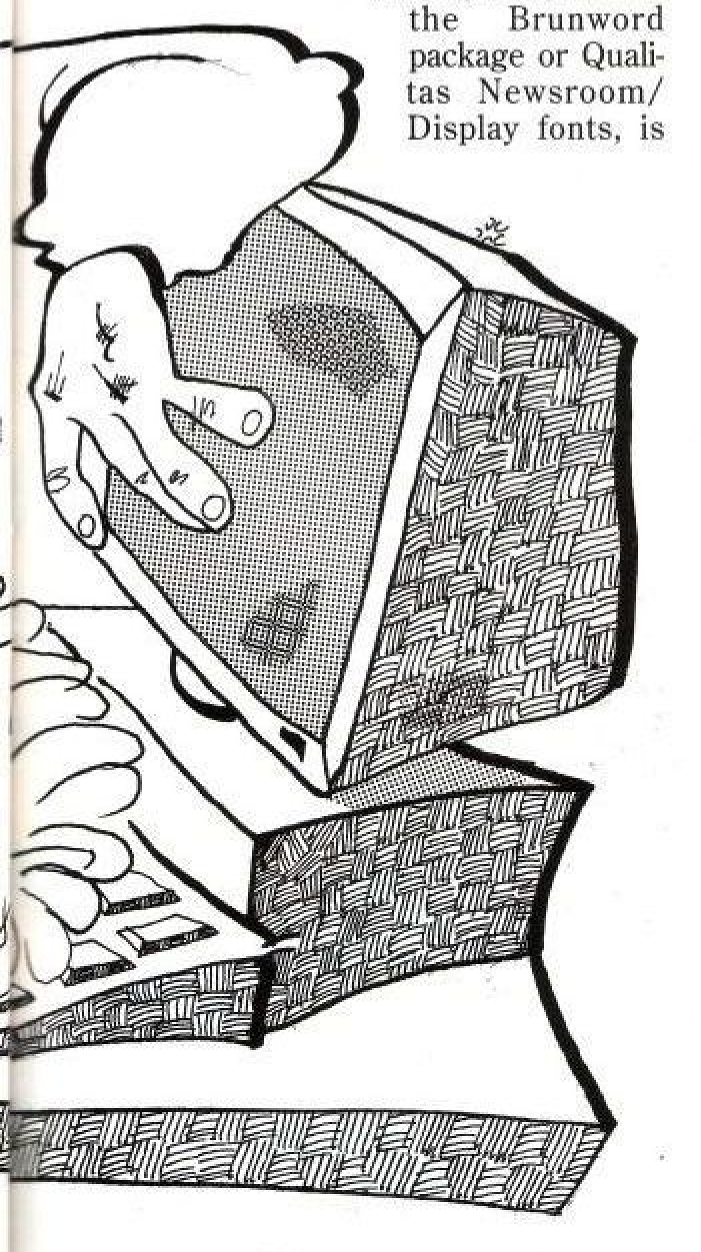
Complex Switching

The next query takes some thinking about! It comes from a very formal C T Betts, who hails from Southampton. He/She/it says:

'Dear Doc, sir (I like it!! – Doc)

I own an Amstrad 6128, DMP 2000 printer, Protext on ROM, Qualitas + with KDS printer port, and new to the setup Brunword Elite, Headline with its associated 8 bit status port.

Knowing that it is most unwise to habitually attach/detach the printer ports to the edge connector and often wishing to use either the Brunword package or Qualitas Newsroom/ Display fonts, is there any gizmo that can be purchased or constructed (within the realms of man and soldering iron) to allow the printer ports to be permanently attached to the edge connector and enable either to be selected by switching, and then terminate at the printer.



I have not tried this for fear of destroying one or the other but could they be simply connected to each other as they are supposedly 'invisible' until called by their respective programs?

Waiting in anticipation.... I'll have to go on buying ACU until the answers appear in print!'

You mean you don't have a subscription?? What a poor do!! Anyway, wait no longer, for here is your answer!

I contacted Peter Brunning about this – he ought to know his way around his interface – and it is impossible to piggy back the two 8 bit ports as in your suggestion – it just won't work. Now, your Qualitas fonts SHOULD work via Brunword Elite (and other packages), through the 8 bit status port.

However, it doesn't do anything to allow you to use Qualitas with Protext, which I assume you also wish to do, since you've mentioned the programs explicitly in your letter. Therefore, we have to find a way of switching between the two different ports and still maintain connection to the printer.

This will involve some soldering, and is definitely not for the impatient or faint hearted. We're going to alter a printer switch box, and use another to choose which of the two lines we're going to use.

In essence, the output from the edge connector can be taken to a two way switch box, and the two printer ports connected to the two outputs from the switch. At the printer end, another box can be connected in reverse, such that either of the outputs from the 8 bit ports can be selected to go into the printer. It will involve making up two adapters from whatever socket the first switch offers to card edges, but that ought not to be too difficult a task, if a little mind- numbing (we're talking around 72 individual solder joints per adapter!) The idea will look like this:

```
______  ________        ________
________ _ _  _  _____         _
_      _ P   _ _6 __          _ S
A__1_>>>>>>>>>>>>>>_A S  _     _ r
_ _1 _>>>>>>>>_ w   __        _ w
_   _ i  _ _2__  _i ____        _
i _>>>>>>>>>>_ n  _ _8 _  _ t ____
_ t  _   _ t  _ _  _     _ c B__
_>>>>>>>>>>>>>_B c  _    _ e  __
_   _ h  _2_      _ h  _      _ r
_ ______           ___________
________       ________
```

1 = KDS port 2 = Brunning Port

Once something like this is set up, setting both switches to 'A' will give you the KDS/Qualitas setup, and using both set at 'B' will allow you to use the Brunword setup.

There is, of course, a drawback to all of this - no, two, even! The first is price. These switch boxes don't come all that cheap (in fact they come very dear for what they are), so you could find yourself parting with better than fifty quid to build the project. At best, it will cost you thirty quid just for the switch boxes, before you add the adapters and leads.

The second is a matter of line impedance and signal quality. Removing the interfaces from the edge connector and moving them away from the machine is not likely to improve their respective performances any - in fact you can expect some problems, I'm afraid.

So, we're back to using the Qualitas utility under Brunword, or swapping the two ports over every so often. Now, I have a tendency to be plugging and unplugging bits and bobs on my machines with a monotonous regularity - and have done since 1984/5 (doesn't time fly?).

I have to say that not one of the nine machines I've used over that time (all of the 6128s) has suffered by being treated like that. I've always observed a couple of rules, though. The first is, never attach or remove ANYTHING while the machine is powered up. That could be terminal for the machine and the peripheral.

Secondly, use loving kindness when you're inserting your peripheral. Be gentle, don't force anything. If it doesn't fit smoothly and easily, assume you're doing something wrong, and re-examine what you're doing. If you treat your ports gently, you can insert and remove bits for ages without causing any harm - and I reckon that five years of peripheral swapping without damage proves the point!

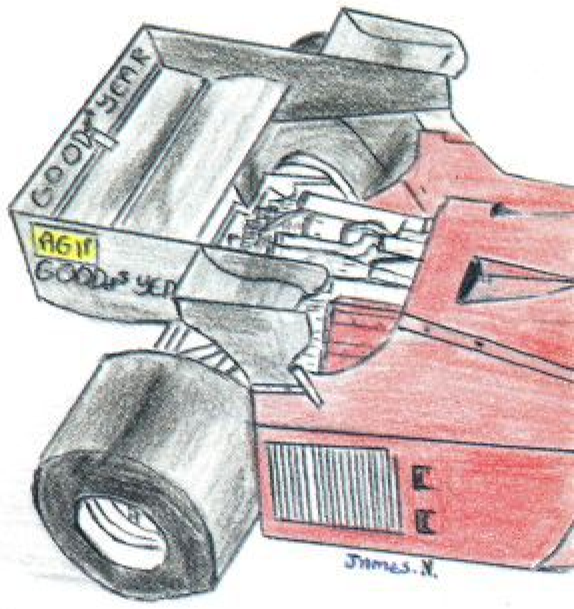
Bagh!! I just get into my stride, and I run out of room! Maybe it's just as well, since the Dorn family is in the process of moving house, lock, stock, and more computers than our local Dioxins! I hear the cry of a box-packing wife demanding my undivided attention. Ergo, I go! See you all next month - get writing those letters, eh??

The sleek machine from Andrew Railton.





Race Time

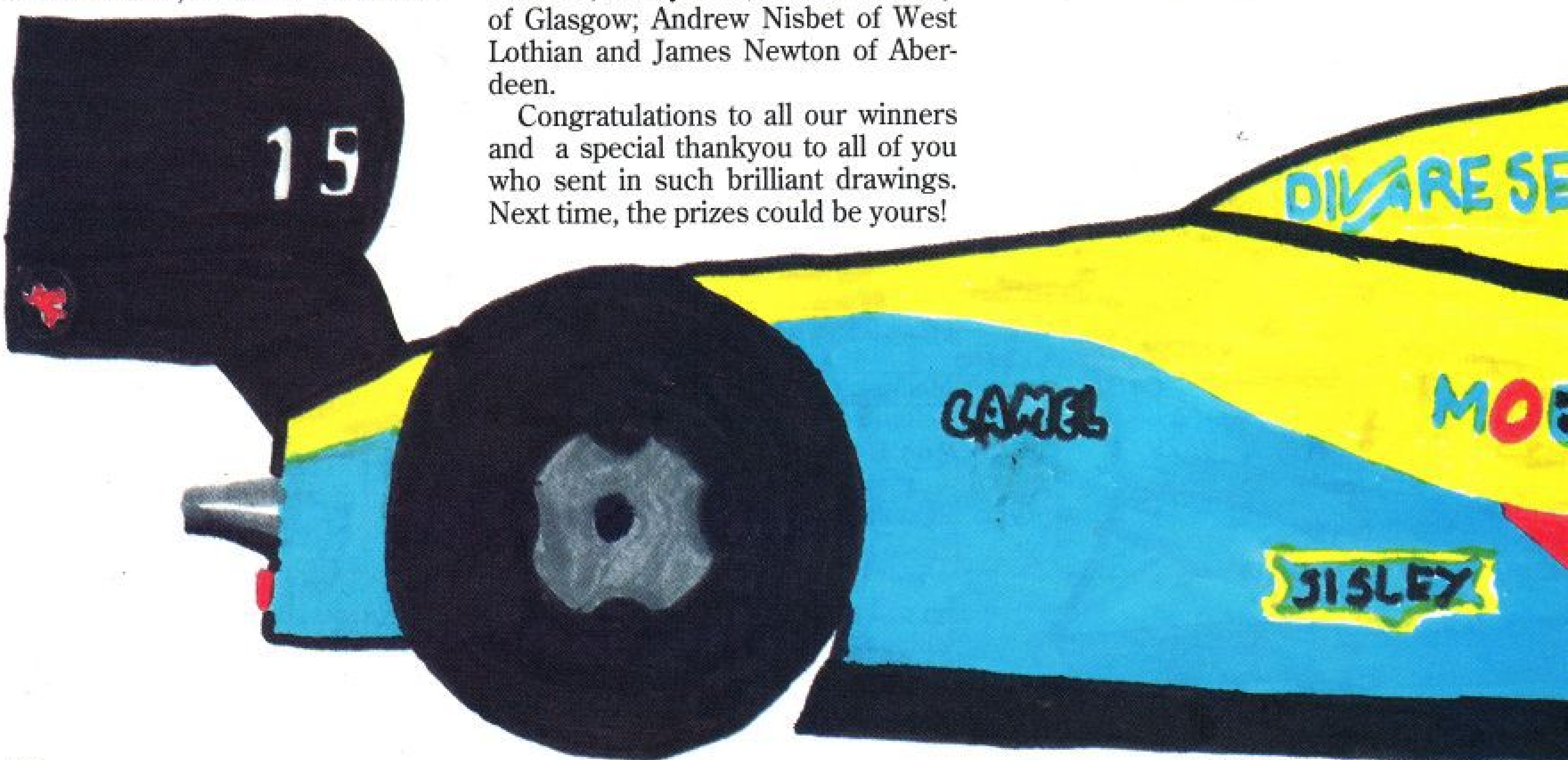


Turn over your motor, press hard on the throttle and get set to find who's won the fabulous Earlydrive day out at Brands Hatch!

We certainly got some phenomenal entries in the mailbag, but after a long and hard deliberation, the whole of the ACU team agreed that the lucky winner should be Andrew Railton of Padgate, Warrington for his marvellously proportioned mean machine. Well done Andrew, get set for the drive of a lifetime and, for those who didn't win the top prize, take a look through the following list of names and see if you've come up trumps to win a super-cool Accolade Sweat Shirt and Shades set.

The runners up are: Ben Symmons of North Baddesley, Southampton; Nic Besley of Stratford-Upon-Avon; Hadyn Hughes of Wolverhampton; Justin Hale of Fishponds, Bristol; Tim Jones of Beaconsfield; Jeremy Whaley of Pembroke, Dyfed; Steven Sammans of Matlock, Derbyshire; Alasdair Lavery of Glasgow; Andrew Nisbet of West Lothian and James Newton of Aberdeen.

Congratulations to all our winners and a special thankyou to all of you who sent in such brilliant drawings. Next time, the prizes could be yours!

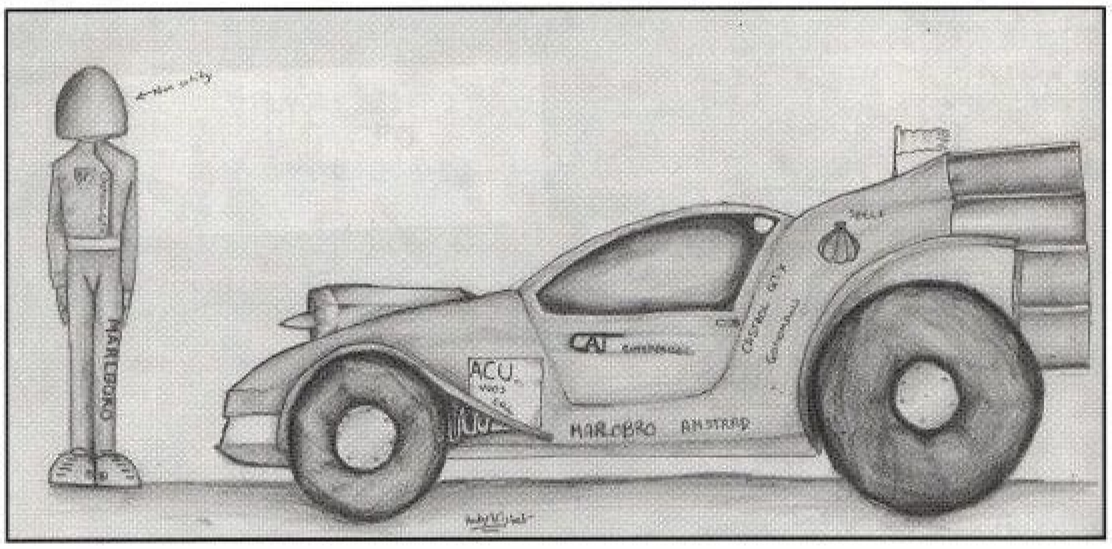


Console Crazy 1984!

Yes, we're all sitting here waiting for that all-important name to be pulled out of the mailbag, to see who's going to walk off with the fabulous GX4000 games console.

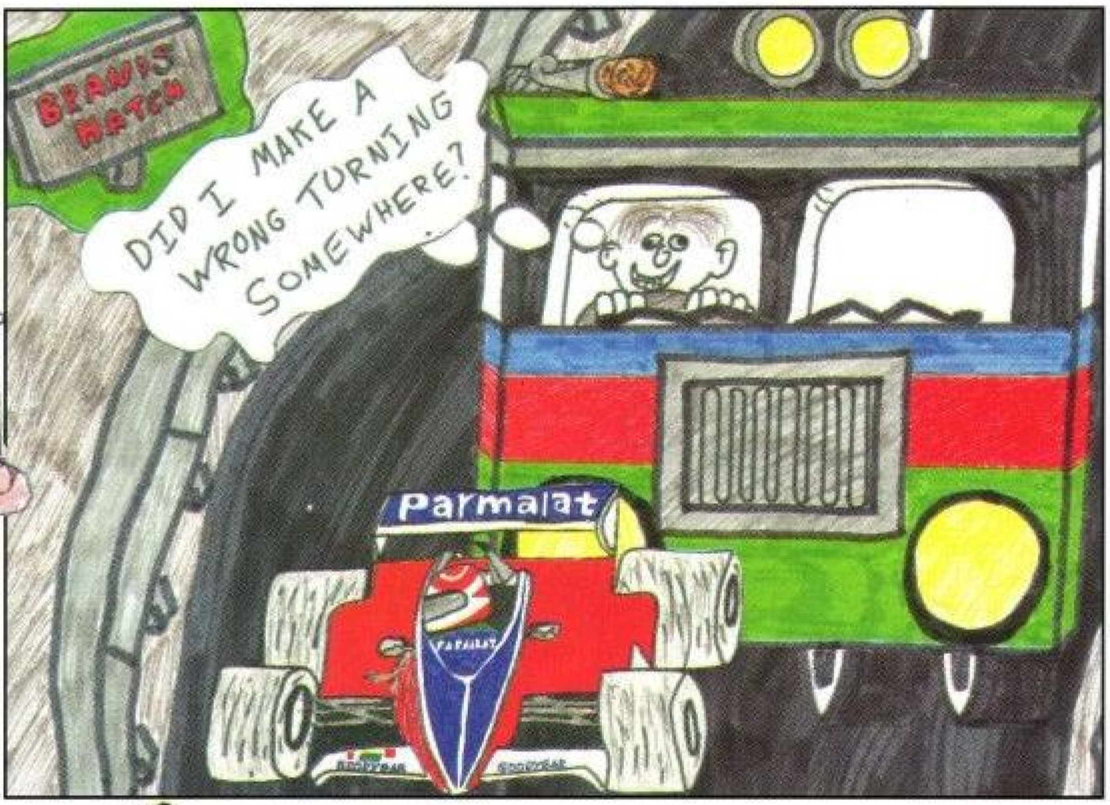
Wait a moment, here it comes, yes! It's a winner! Calling Keith Mason of Barnet, Herts. Can you hear me Keith? You can? Good, because you've just won the big prize which will be winging its way to you with all due haste from those awfully nice people at Amstrad.

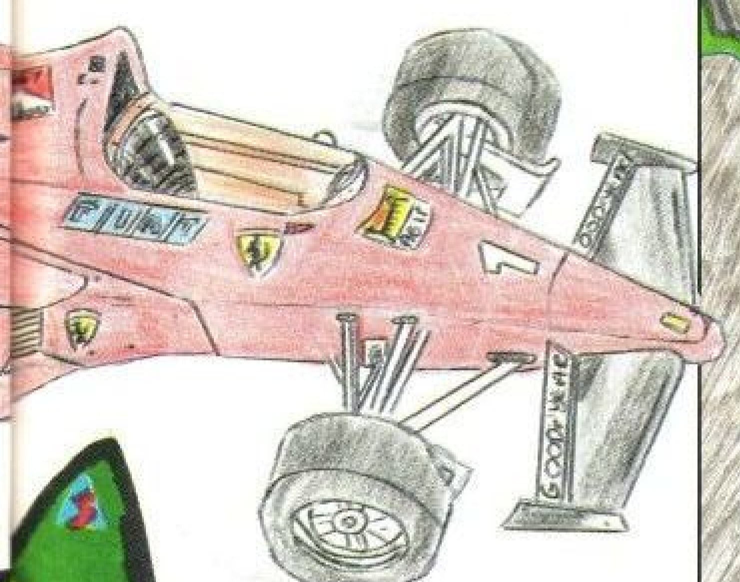
Thanks for the wads of entries and sorry we could only have one lucky winner, but have fun with it Keith.













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TOUCHDOWN

BY DUNCAN EVANS

Here it is, your chance to celebrate this year's Super Bowl in style. Unfortunately, the listing was too big to contain it all this month, but type in this section, save it and finish off next month to finish up with an excellent American Football strategy game.

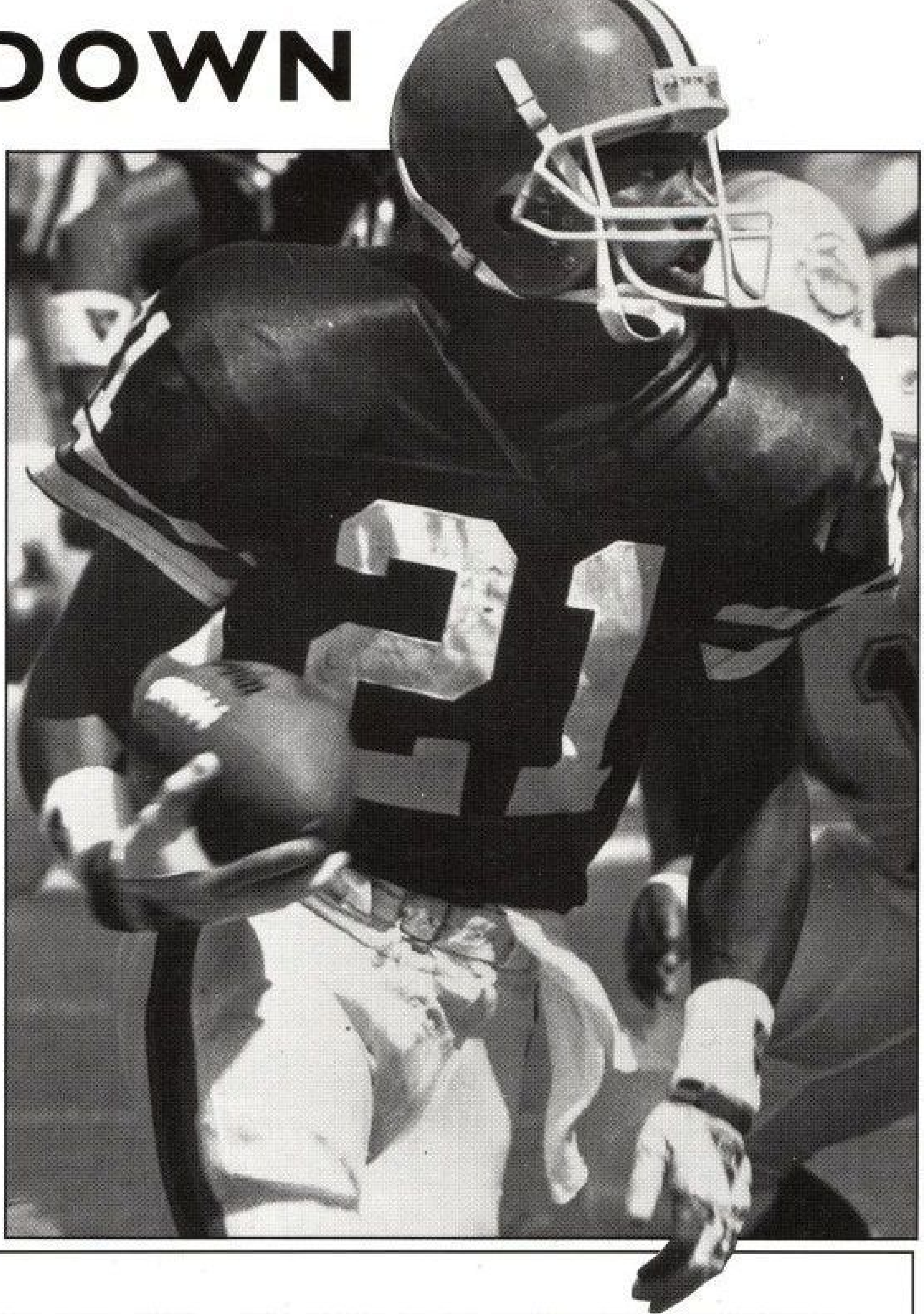
The names of all 28 NFL teams are here, and as you choose your favourite, take a look at their ratings before deciding on which offensive or defensive moves to make.

You'll need to be pretty up on the art of the game to succeed with your plays, but by following the easy to use menu, the game is challenging and fun.

Once you've typed it all in, you can always play around with the program to alter player ratings and enter your favourite names and, once you've started, you can take a breather by pressing T for a Time Out.

The game is well worth the typing, but if you're feeling lazy, you can always write in to ACU to get hold of a super-deluxe version of the game for £6. For that, you get fully animated graphics, neat sound effects and a full season of NFL games to play through. Not bad, eh?

If you want a copy of the game on tape, just send a cheque and SAE to ACU Touchdown Tape, MSM Ltd., 116-120 Goswell Road, London EC1V 7QD.



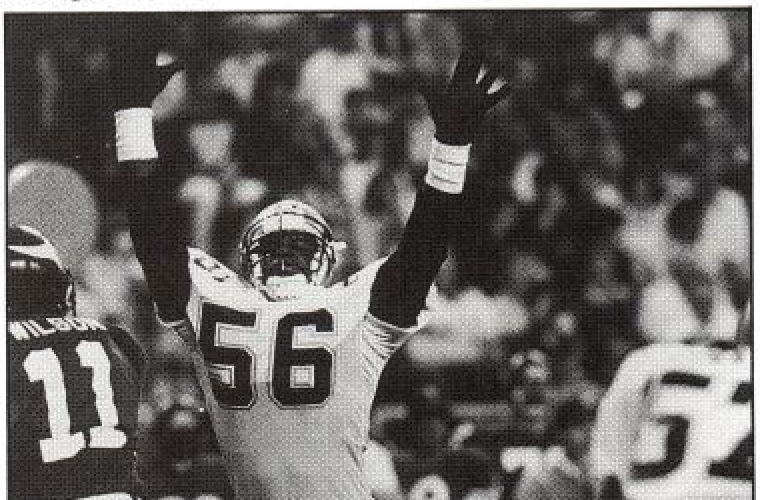
```
10 DIM team$(28),sackyards(14),player(24
),oplayer(24),player$(24),oplayer$(24)
20 FOR f=1 TO 28:READ team$(f):NEXT f
30 FOR f=1 TO 14:READ sackyards(f):NEXT
f
40 FOR f=1 TO 24:READ player(f):oplayer(
f)=40+INT(RND(1)*39):NEXT f
45 timeouts=3:halftime=0:ytogo=10:down=1
:ball=1:quarter=1:ypoints=0:opoints=0:se
conds=0:clock=3600:position=20:RANDOMIZE
 TIME:INK 0,0:BORDER 0:INK 1,6:INK 2,24:
INK 3,18
50 FOR f=1 TO 24:READ player$(f):NEXT f:
FOR f=1 TO 24:READ oplayer$(f):NEXT f
60 SYMBOL 240,1,1,1,1,1,1,1,1:SYMBOL 241
,89,170,89,170,89,170,89,170:SYMBOL 242,
68,68,68,68,68,124,16,16:SYMBOL 243,0,24
,24,20,56,80,40,40:SYMBOL 244,0,24,24,40
,28,10,20,20
70 PAPER 0:PEN 2:CLS:PAPER 1: LOCATE 10,
6:PRINT"****************":LOCATE 12,7:PA
PER 0:PRINT"SUPERBOWL 91":PEN 1:LOCATE 1
0,8:PRINT"(c) Duncan Evans":PAPER 1:PEN
2:LOCATE 10,9:PRINT"****************"
80 LOCATE 8,23:PAPER 0:PRINT"Press any k
ey to start":WHILE INKEY$="":WEND
100 PAPER 0:PEN 1:CLS:LOCATE 5,1:PRINT "
Select your team"
110 PRINT:FOR f=1 TO 14:PRINT f" "team$(
f):NEXT f
120 FOR f=15 TO 28:LOCATE 20,f-12:PRINT
f" "team$(f):NEXT f
130 INPUT a:IF a<1 OR a>28 GOTO 130
140 yteam=a:yteam$=team$(a):WHILE a=ytea
m:a=INT(RND(1)*28)+1:WEND:oteam=a:oteam$
=team$(a)
150 CLS:LOCATE 5,10:PRINT "You will play
 ";oteam$
160 FOR f=1 TO 1000:NEXT f:PAPER 0:CLS
170 LOCATE 10,1:PRINT "The teams and rat
ings":PEN 3:FOR f=1 TO 24:LOCATE 6,f+1:P
RINT player$(f);"-";player(f):LOCATE 25,
f+1:PRINT oplayer$(f);":";oplayer(f):NEX
T
175 PEN 2:LOCATE 1,2:PRINT"QB":PRINT"RB"
:PRINT"FB":PRINT"WR-r":PRINT"WR-l":PRINT
"TE":PRINT"C":PRINT"G-r":PRINT"G-l":PRIN
T"T-r":PRINT"T-l"
178 PRINT"NT":PRINT"DE-l":PRINT"DE-r":PR
INT"OLBl":PRINT"OLBr":PRINT"ILBl":PRINT"
ILBr":PRINT"CB-l":PRINT"CB-r":PRINT"S-l"
:PRINT"S-r":PRINT"K":PRINT"P"
```

```
180 WHILE INKEY$="":WEND
190 PAPER 0:CLS
210 REM Duncan - set up the pitch and ov
erall screen display here
220 LOCATE 1,1:PAPER 2:PEN 1:FOR f=1 TO
40: PRINT" ";:NEXT f:LOCATE 3,1:PRINT yt
eam$;"  ";ypoints:LOCATE 23,1:PRINT otea
m$;"  ";opoints
230 PAPER 2:PEN 1
240 LOCATE 1,3:PRINT"1.QB SNK ":PRINT"2.
SWEEP L":PRINT"3.SWEEP R":PRINT"4. DRAW
 ":PRINT"5.REVERSE":PRINT"6.SCREEN ":PRI
NT"7.SLANT L":PRINT"8.SLANT R":PRINT"9.C
ROSS L":PRINT"10.CROSSR":PRINT"11.POST L
":PRINT"12.POST R"
250 LOCATE 32,3:PRINT"1.STANDRD":LOCATE
32,4:PRINT"2.PREVENT":LOCATE 32,5:PRINT"
   PASS  ":LOCATE 32,6:PRINT"3.LB BLTZ":
LOCATE 32,7:PRINT"4.PREVENT":LOCATE 32,8
:PRINT"   RUSH  "
255 LOCATE 32,11:PRINT"13.FIELD ":LOCATE
 32,12:PRINT"   GOAL  ":LOCATE 32,13:PRI
NT"14.PUNT  ":LOCATE 32,14:PRINT SPC(9)
260 PAPER 1:PEN 2:LOCATE 1,2:PRINT" OFFE
NSE ":LOCATE 32,2:PRINT" DEFENSE ":LOCAT
E 32,9:PRINT" SPECIAL ":LOCATE 32,10:PRI
NT"  TEAMS  "
270 PAPER 2:FOR f=24 TO 25:LOCATE 16,f:P
RINT"  ":LOCATE 24,f:PRINT"  ":NEXT f:GO
SUB 9200:GOSUB 9300
280 PEN 1:PAPER 2:LOCATE 1,18:PRINT"  DO
WN   ":LOCATE 1,20:PRINT"YARDS TGO":LOCA
TE 1,22:PRINT"TIME OUTS":LOCATE 32,18:PR
INT" QUARTER ":LOCATE 32,20:PRINT"  CLOC
K  ":LOCATE 32,22:PRINT"POSSESION"
290 GOSUB 9400
1000 REM THIS IS THE MAIN GAME LOOP
1090 punt=0:yards=0:sackyards=0
1100 IF ball=1 THEN GOSUB 2000:GOTO 1105
:REM 2000 is your offense, 4000 theirs
1102 IF ball=0 THEN GOSUB 4000
1105 GOSUB 9500
1110 WHILE a$="":a$=INKEY$:WEND
1120 IF timeouts>1 AND a$="t" THEN timeo
uts=timeouts-1:seconds=10
1130 GOSUB 9300:IF ball=1 AND down=5 THE
N ball=0:ytogo=10:down=1:PEN 2:PAPER 1:L
OCATE 11,18:PRINT"The ball changes":LOCA
TE 11,19:PRINT" possession"
1140 IF ball=0 AND down=5 THEN ball=1:do
wn=1:ytogo=10:LOCATE 11,18:PRINT yteam$;
" gets":LOCATE 11,19:PRINT" the ball bac
k"
1150 clock=clock-seconds:IF clock>2700 T
HEN quarter=1
1160 IF clock>1800 AND clock<=2700 THEN
quarter=2
1170 IF clock>900 AND clock<=1800 THEN q
uarter=3
1180 IF clock<900 THEN quarter=4
1190 IF halftime=0 AND quarter=3 THEN GO
SUB 9300:PEN 2:PAPER 1:LOCATE 11,18:PRIN
T"Halftime ! And the":LOCATE 11,19:PRINT
"score is ";ypoints;"v";opoints:LOCATE 1
1,20:PRINT "Ball changes hands":LOCATE 1
1,22:PRINT"Prepare to":LOCATE 11,23
1200 IF halftime=0 AND quarter=3 THEN PR
INT"start the 2nd half":ball=0:down=1:yt
ogo=10:position=80:halftime=1:FOR f=1 TO
 5000:NEXT
1210 GOSUB 9200:GOSUB 9300:IF clock<=0 T
HEN LOCATE 11,20:PRINT"GAME OVER":END:RE
M If you are going to put stats in, this
 is the place.
1220 REM after seeing the effects of you
r play, waiting for a time out, theprogr
am updates the displays
1230 GOSUB 9400
1300 GOTO 1090
1999 REM Your offense
2000 GOSUB 9300
2049 REM computer picks defense play
2050 IF down <>1 GOTO 2100
2060 a=INT(RND(1)*6+1):IF a<4 THEN oplay
=1
2070 IF a>3 THEN oplay=a-2
2100 IF down<>2 GOTO 2150
2110 a=INT(RND(1)*4+1):IF ytogo<6 AND a<
3 THEN oplay=4
2120 IF ytogo<6 AND a=3 THEN oplay=3
2130 IF ytogo<6 AND a=4 THEN oplay=1
2135 IF ytogo>5 AND a<3 THEN oplay=1
2140 IF ytogo>5 AND a=3 THEN oplay=2
2145 IF ytogo>5 AND a=4 THEN oplay=4
2150 IF down<>3 GOTO 2200
2155 a=INT(RND(1)*5+1):IF ytogo<6 AND a<
4 THEN oplay=4
2160 IF ytogo<6 AND a=4 THEN oplay=3
2165 IF ytogo<6 AND a=5 THEN oplay=1
2170 IF ytogo>5 AND a<4 THEN oplay=2
2175 IF ytogo>5 AND a=5 THEN oplay=3
2200 IF down<>4 GOTO 2300
2210 a=INT(RND(1)*2+1):IF ytogo<10 AND a
=1 THEN oplay=1
2220 IF ytogo<10 AND a=2 THEN oplay=4
2230 IF ytogo>9 THEN oplay=a
2299 REM Work out defense modifiers
2300 a=oplay:GOSUB 9700
2335 REM**** NOW READ YOUR PLAY CALL ***
***
2340 LOCATE 11,20:INPUT"Enter offense ";
yplay:IF yplay<1 OR yplay>14 GOTO 2340
2342 d1$="":d2$="":d3$="":IF yplay=1 THE
N d1$="and runs with ball"
2344 IF yplay>1 AND yplay<6 THEN d1$="an
d hands off to"
2346 IF yplay>5 AND yplay<13 THEN d1$="a
nd passes to"
2355 REM ** Work out whether there's a Q
B sack ***
2356 IF oplay<>3 GOTO 2400:REM No sack c
hance, so on with the offense
2358 a=INT(RND(1)*100+1):IF a<=30+oplaye
r(16)-player(11) THEN d2$=oplayer$(16):G
OTO 2380:REM OLB-R strikes
2360 IF a<=30+oplayer(15)-player(10) THE
N d2$=oplayer$(15):GOTO 2380
2365 IF a<=15+oplayer(17)-player(8) THEN
 d2$=oplayer(17):GOTO 2380
2370 IF a<=15+oplayer(18)-player(9) THEN
 d2$=oplayer(18):GOTO 2380
2375 GOTO 2400: REM You escaped
2380 seconds=20:yards=sackyards(yplay):d
1$="and is sacked by":GOTO 3900
2400 REM Work out results of the play ca
lls
2410 a=INT(RND(1)*100+1):ON yplay GOTO 2
500,2600,2700,2800,2900,3000,3100,3200,3
300,3400,3500,3600,3700,3800
2500 REM yplay 1
2510 IF a<=60+defmod(1)+player(1)-oplaye
r(12) THEN yards=INT((RND(1)*5+1)*(playe
r(1)/oplayer(17)))
2515 seconds=30:d2$="for "+STR$(yards)+"
 yards"
2520 GOTO 3900
2600 seconds=30:IF a<=60+defmod(2)+playe
r(2)-oplayer(14) THEN yards=INT((RND(1)*
```

```
10+1)*(player(2)/oplayer(16))):seconds=4
0
2610 d2$=player$(2)
2620 IF yards>0 AND INT(RND(1)*100+1)<=3
0+(player(2)-oplayer(16)) THEN yards=yar
ds+INT((RND(1)*30+1)*(player(2)/oplayer(
20))):seconds=50
2630 GOTO 3900
2700 seconds=30:IF a<=60+defmod(3)+playe
r(2)-oplayer(13) THEN yards=INT((RND(1)*
10+1)*(player(2)/oplayer(15))):seconds=4
0
2710 IF yards>0 AND INT(RND(1)*100+1)<=3
0+(player(2)-oplayer(15)) THEN yards=yar
ds+INT((RND(1)*30+1)*(player(2)/oplayer(
19))):seconds=50
2720 d2$=player$(2):GOTO 3900
2800 seconds=20:IF a<=60+defmod(4)+playe
r(3)-oplayer(13) THEN yards=INT((RND(1)*
10+1)*(player(3)/oplayer(INT(RND(1)*2+17
)))):seconds=35
2810 d2$=player$(3):GOTO 3900
2900 seconds=35:IF a<=60+defmod(5)+playe
r(6)-oplayer(INT(RND(1)*2+15)) THEN yard
s=INT(RND(1)*20+1):seconds=45
2905 IF yards>0 AND INT(RND(1)*100+1)<=4
0+defmod(5)+(player(6)-oplayer(INT(RND(1
)*2+19))) THEN yards=yards+INT((RND(1)*4
0+1)*(player(6)/oplayer(INT(RND(1)*2+19)
))):seconds=60
2910 d2$=player$(6):GOTO 3900
3000 seconds=10:IF a<=65+defmod(6)+((pla
yer(1)+player(6))/2)-(oplayer(INT(RND(1)
*2+15))) THEN yards=INT(RND(1)*10+1):sec
onds=25
3005 IF yards>0 AND INT(RND(1)*100+1)<=3
0+defmod(6)+(player(6)-oplayer(INT(RND(1
)*2+19))) THEN yards=yards+INT((RND(1)*1
5+1)*(player(4)/oplayer(19))):seconds=30
3010 d2$=player$(6):GOTO 3900
3100 seconds=10:IF a<=50+defmod(7)+((pla
yer(1)+player(5))/2)-oplayer(20) THEN ya
rds=5+INT((RND(1)*10)*(player(5)/oplayer
(20))):seconds=25
3105 IF yards>0 AND INT(RND(1)*100+1)<=2
5+defmod(7)+player(5)-oplayer(20) THEN y
ards=yards+INT((RND(1)*20)*player(5)/opl
ayer(22)):seconds=30
3110 d2$=player$(5):GOTO 3900
3200 seconds=10:IF a<=50+defmod(8)+((pla
yer(1)+player(4))/2)-oplayer(19) THEN ya
rds=5+INT((RND(1)*10)*(player(4)/oplayer
(19))):seconds=25
3205 IF yards>0 AND INT(RND(1)*100+1)<=2
5+defmod(8)+player(4)-oplayer(19) THEN y
ards=yards+INT((RND(1)*20)*(player(4)/op
layer(21))):seconds=30
3210 d2$=player$(4):GOTO 3900
3300 seconds=15:IF a<=40+defmod(9)+((pla
yer(1)+player(5))/2)-oplayer(20) THEN ya
rds=10+INT((RND(1)*10)*(player(5)/oplaye
r(20))):seconds=30
3305 IF yards>0 AND INT(RND(1)*100+1)<=2
0+defmod(9)+player(5)-oplayer(20) THEN y
ards=yards+INT((RND(1)*30)*(player(5)/op
layer(22))):seconds=40
3310 d2$=player$(5):GOTO 3900
3400 seconds=15:IF a<=40+defmod(10)+((pl
ayer(1)+player(4))/2)-oplayer(19) THEN y
ards=10+INT((RND(1)*10)*(player(4)/oplay
er(19))):seconds=30
3405 IF yards>0 AND INT(RND(1)*100+1)<=2
0+defmod(10)+player(4)-oplayer(19) THEN
yards=yards+INT((RND(1)*30)*player(4)/op
layer(21))):seconds=40
3410 d2$=player$(4):GOTO 3900
3500 seconds=20:IF a<=25+((player(1)+pla
yer(5))/2)-oplayer(22) THEN yards=20+INT
((RND(1)*20)*(player(5)/oplayer(22))):se
conds=45
3505 IF yards>0 AND INT(RND(1)*100+1)<=1
5+player(5)-oplayer(22) THEN yards=101-p
osition:seconds=60
3510 d2$=player$(5):GOTO 3900
3600 seconds=20:IF a<=25+((player(1)+pla
yer(4))/2)-oplayer(21) THEN yards=20+INT
((RND(1)*20)*(player(4)/oplayer(21))):se
conds=45
3605 IF yards>0 AND INT(RND(1)*100+1)<=1
5+player(4)-oplayer(21) THEN yards=101-p
osition:seconds=60
3610 d2$=player$(4):GOTO 3900
3700 GOSUB 9300:LOCATE 11,17:PEN 2:PAPER
 1:PRINT player$(23);" goes for":LOCATE
11,18:PRINT"a ";(100-position);"yrd fiel
d goal":LOCATE 15,19:PRINT"And...."
3710 IF a>player(23)+25-(100-position) O
R position<55 THEN LOCATE 13,20:GOSUB 95
00:PRINT"He missed !":ball=0:down=1:seco
nds=30:position=80:ytogo=10:RETURN
3720 LOCATE 13,20:PRINT"IT'S GOOD !":ypo
ints=ypoints+3:ball=0:position=80:ytogo=
10:down=1:seconds=30:RETURN
3800 punt=30+INT(RND(1)*20*player(24)/50
)
3805 GOSUB 9300
3810 PEN 2:PAPER 1:LOCATE 11,17:PRINT pl
ayer$(24);" punts for":LOCATE 14,18:PRIN
T punt;"yards":IF punt+position>100 THEN
 LOCATE 11,19:PRINT"TOUCHBACK to 20yrds"
:position=80:GOTO 3830
3820 position=position+punt
3830 ball=0:down=1:ytogo=10:seconds=30:R
ETURN
3900 IF yplay>5 AND yards=0 THEN d3$="IN
COMPLETE":GOTO 3930
3910 IF yards=0 AND yplay<>1 THEN yards=
INT(RND(1)*3-1)
3920 IF yplay>1 THEN d3$="for "+STR$(yar
ds)+" yards"
3930 GOSUB 9300:LOCATE 11,17:PRINT playe
r$(1);" takes snap":LOCATE 11,18:PRINT d
1$:LOCATE 11,19:PRINT d2$:FOR f=1 TO 100
0:NEXT:LOCATE 11,20:PRINT d3$
3935 down=down+1:position=position+yards
:IF position<0 OR position>100 GOTO 3950
3940 ytogo=ytogo-yards:IF ytogo<1 THEN L
OCATE 11,21:PRINT"  FIRST DOWN !":down=1
:ytogo=10:GOSUB 9500:RETURN
3945 RETURN
3950 IF position>100 GOTO 3970
3960 LOCATE 11,21:PRINT" !  SAFETY !":op
oints=opoints+2:ball=0:ytogo=10:position
=80:down=1:RETURN
3970 LOCATE 11,21:PRINT"* TOUCHDOWN * TO
UCH":LOCATE 11,22:PRINT"DOWN * TOUCHDOWN
 * T":LOCATE 11,23:PRINT"OUCHDOWN * TOUC
HDOWN"
3980 GOSUB 9500:GOSUB 9300:ypoints=ypoin
ts+6:LOCATE 11,16:IF RND(1)*100+1<player
(23)+35 THEN ypoints=ypoints+1:PRINT"P.A
.T is good":ELSE PRINT"P.A.T is missed"
3990 ball=0:down=1:ytogo=10:position=80:
RETURN
3995 REM ***** here lies the wall betwee
n the two offenses ****
4000 REM Computer offense: You pick defe
nse play (from the big choice)
```

```
4010 GOSUB 9300
4020 LOCATE 11,20:INPUT"Enter defense ";
yplay:IF yplay<1 OR yplay>4 GOTO 4020
4030 a=yplay:GOSUB 9700
4040 REM *** Computer picks offense ***
4045 IF clock<60 AND (ypoints-opoints<3)
 THEN oplay=13:GOTO 4350
4050 IF down>2 GOTO 4060
4055 oplay=INT(RND(1)*12+1):REM on first
 or 2nd down, anything can happen
4060 IF down<>3 GOTO 4200
4070 IF ytogo<10 GOTO 4100
4075 a=INT(RND(1)*3):IF a=1 THEN oplay=I
NT(RND(1)*4+2)
4080 IF a<>1 THEN oplay=INT(RND(1)*7+6)
4100 IF ytogo>14 AND a=1 THEN oplay=5
4110 IF ytogo>14 AND a>1 THEN oplay=INT(
RND(1)*4+9)
4200 IF down<>4 GOTO 4340
4210 IF position<45 THEN oplay=13 ELSE o
play=14
4340 d1$="":d2$="":d3$="":IF oplay=1 THE
N d1$="and runs with ball"
4345 IF oplay>1 AND oplay<6 THEN d1$="an
d hands off to"
4350 IF oplay>5 AND oplay<13 THEN d1$="a
nd passes to"
4355 REM *** Work out sack chance ***
4356 IF yplay<>3 GOTO 4400
4358 a=INT(RND(1)*100+1):IF a<=30+player
(16)-oplayer(11) THEN d2$=player$(16):GO
TO 2380
4360 IF a<=30+player(15)-oplayer(10) THE
N d2$=player$(15):GOTO 4380
4365 IF a<=15+player(17)-oplayer(8) THEN
 d2$=player(17):GOTO 4380
4370 IF a<=15+player(18)-oplayer(9) THEN
 d2$=player(18):GOTO 4380
4375 GOTO 4400
4380 seconds=20:yards=sackyards(oplay):d
1$="and is sacked by":GOTO 5900
4400 REM Work out play results
4410 a=INT(RND(1)*100+1):ON oplay GOTO 4
500,4600,4700,4800,4900,5000,5100,5200,5
300,5400,5500,5600,5700,5800
4500 IF a<=60+defmod(1)+oplayer(1)-playe
r(12) THEN yards=INT((RND(1)*5+1)*(oplay
er(1)/player(17)))
4515 seconds=30:d2$="for "+STR$(yards)+"
 yards"
4520 GOTO 5900
4600 seconds=30:IF a<=60+defmod(2)+oplay
er(2)-player(14) THEN yards=INT((RND(1)*
10+1)*(oplayer(2)/player(16))):seconds=4
0
4610 d2$=oplayer$(2)
4620 IF yards>0 AND INT(RND(1)*100+1)<=3
0+(oplayer(2)-player(16)) THEN yards=yar
ds+INT((RND(1)*30+1)*(oplayer(2)/player(
20))):seconds=50
4630 GOTO 5900
4700 seconds=30:IF a<=60+defmod(3)+oplay
er(2)-player(13) THEN yards=INT((RND(1)*
10+1)*(oplayer(2)/player(15))):seconds=4
0
4710 IF yards>0 AND INT(RND(1)*100+1)<=3
0+(oplayer(2)-player(15)) THEN yards=yar
ds+INT((RND(1)*30+1)*(oplayer(2)/player(
19))):seconds=50
4720 d2$=oplayer$(2):GOTO 5900
4800 seconds=20:IF a<=60+defmod(4)+oplay
er(3)-player(13) THEN yards=INT((RND(1)*
10+1)*(oplayer(3)/player(INT(RND(1)*2+17
)))):seconds=35
4810 d2$=oplayer$(3):GOTO 5900
4900 seconds=35:IF a<=60+defmod(5)+oplay
er(6)-player(INT(RND(1)*2+15)) THEN yard
s=INT(RND(1)*20+1):seconds=45
4905 IF yards>0 AND INT(RND(1)*100+1)<=4
0+defmod(5)+(oplayer(6)-player(INT(RND(1
)*2+19))) THEN yards=yards+INT((RND(1)*4
0+1)*(oplayer(6)/player(INT(RND(1)*2+19)
))):seconds=60
4910 d2$=oplayer$(6):GOTO 5900
5000 seconds=10:IF a<=65+defmod(6)+((opl
ayer(1)+oplayer(6))/2)-(player(INT(RND(1
)*2+15))) THEN yards=INT(RND(1)*10+1):se
conds=25
5005 IF yards>0 AND INT(RND(1)*100+1)<=3
0+defmod(6)+(oplayer(6)-player(INT(RND(1
)*2+19))) THEN yards=yards+INT((RND(1)*1
5+1)*(oplayer(4)/player(19))):seconds=30
5010 d2$=oplayer$(6):GOTO 5900
5100 seconds=10:IF a<=50+defmod(7)+((opl
ayer(1)+oplayer(5))/2)-player(20) THEN y
ards=5+INT((RND(1)*10)*(oplayer(5)/playe
r(20))):seconds=25
5105 IF yards>0 AND INT(RND(1)*100+1)<=2
5+defmod(7)+oplayer(5)-player(20) THEN y
ards=yards+INT((RND(1)*20)*oplayer(5)/pl
ayer(22)):seconds=30
5110 d2$=oplayer$(5):GOTO 5900
5200 seconds=10:IF a<=50+defmod(8)+((opl
ayer(1)+oplayer(4))/2)-player(19) THEN y
ards=5+INT((RND(1)*10)*(oplayer(4)/playe
r(19))):seconds=25
5205 IF yards>0 AND INT(RND(1)*100+1)<=2
5+defmod(8)+oplayer(4)-player(19) THEN y
ards=yards+INT((RND(1)*20)*(oplayer(4)/p
layer(21))):seconds=30
5210 d2$=oplayer$(4):GOTO 5900
5300 seconds=15:IF a<=40+defmod(9)+((opl
ayer(1)+oplayer(5))/2)-player(20) THEN y
```

listing continued next month



Setting it up

Yvonne Taylor takes a peek at a bit of DTP on the cheap side

Page Setter 64 is a desk-top publishing program for the 64K Amstrad CPC with disk or tape-drive. The program is divided into three parts; the main program, a text editor and a graphics editor. The text editor allows the user to enter and manipulate text and font files, individually, for use later in the main program. The manual does say that when designing fonts any character can be defined anywhere in the set but goes on to advise users to stay with the standard ASCII pattern to avoid difficulties. The graphics editor allows the user to design graphics or load them in from elsewhere. Outside graphics can be loaded in only if they have been saved in standard format with a .BIN extension. Graphics can be made-up of separate design elements e.g. lines and polygons, the polygons must have their sides defined before you draw them,when you have they can be filled by selecting fill from the menu and placing a cross hair inside the object. The fill is fairly fast and can be one of 16 fill patterns. In this way with a little talent you can brighten up your pages and break-up monotonous text blocks.

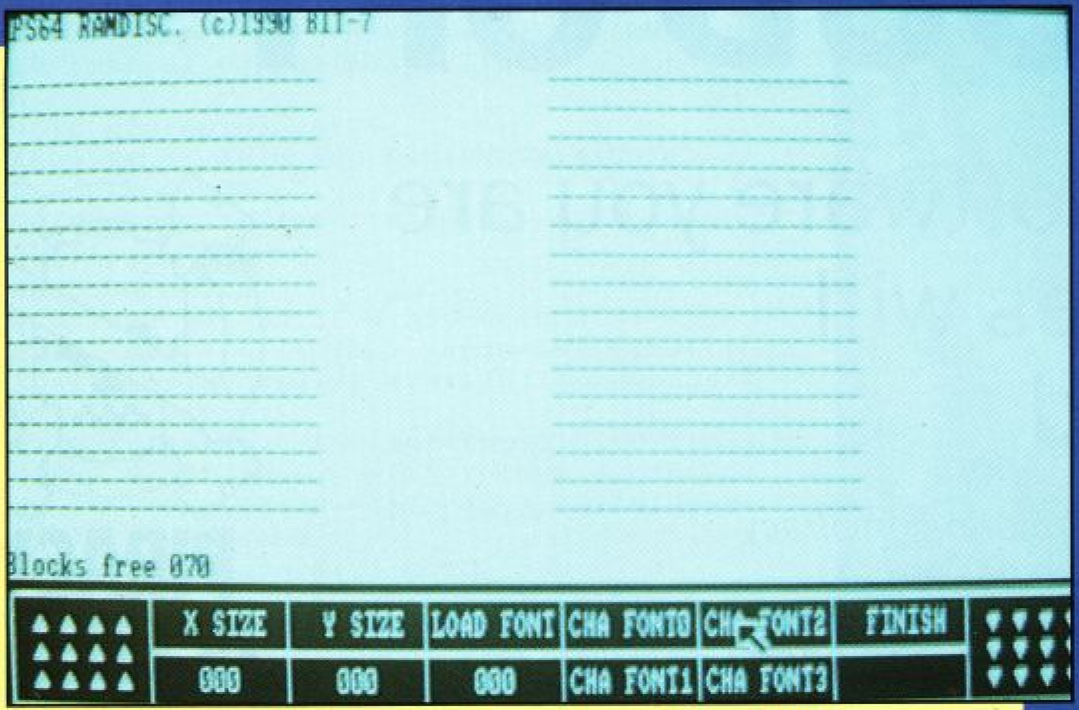
The entire program is run by a set of menus where options are selected by an arrow pointer in a wimp-like environment. The main menu allows the



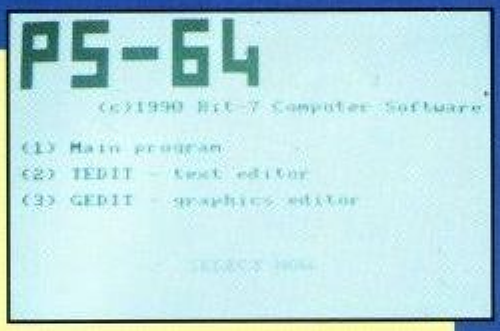
user to carry out or access all the main functions of the program. It is from there that graphic, text, font or library files can be loaded from the RAM disk system. Text can be placed in blocks, each of a different font, and word wrapped and justified. Graphic files also can be placed into 64 different blocks and used as many times as the user chooses.

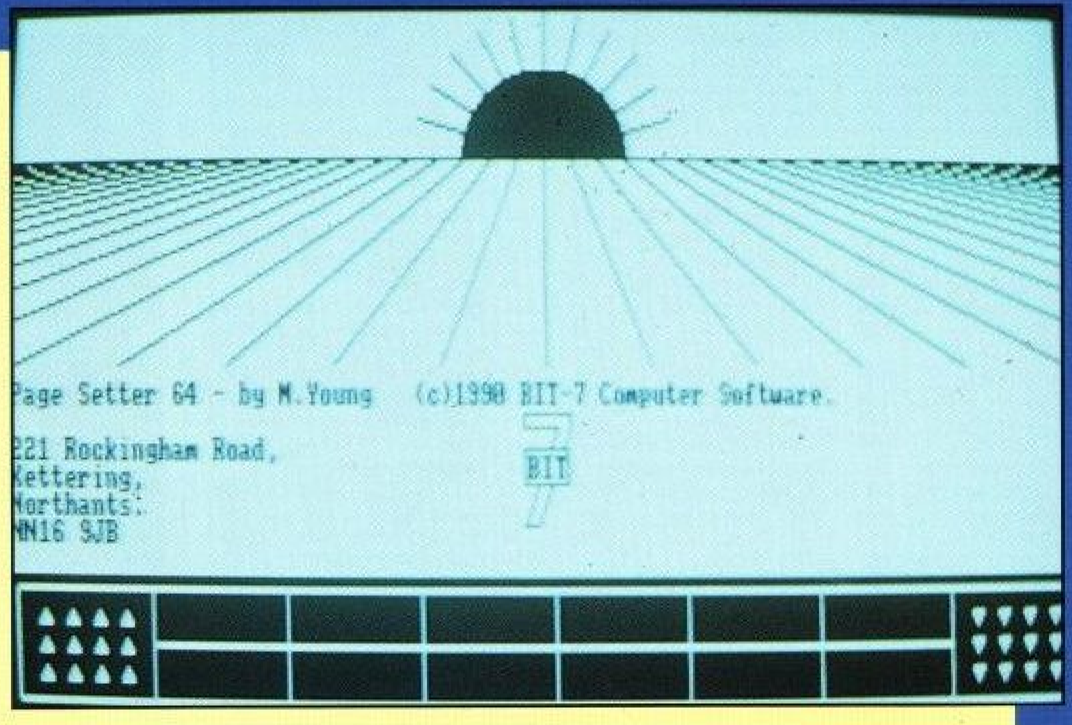
For those needing to design boxes, the screen can be formed into a grid of 80 by 50. Box parts e.g. corners cross-bars etc. are selected from th menu and may be placed in any of the grid squares in-order to form boxes and grids. These files can be changed if the user wishes. The standard Amstrad font is selected by choosing none of the directory font files.

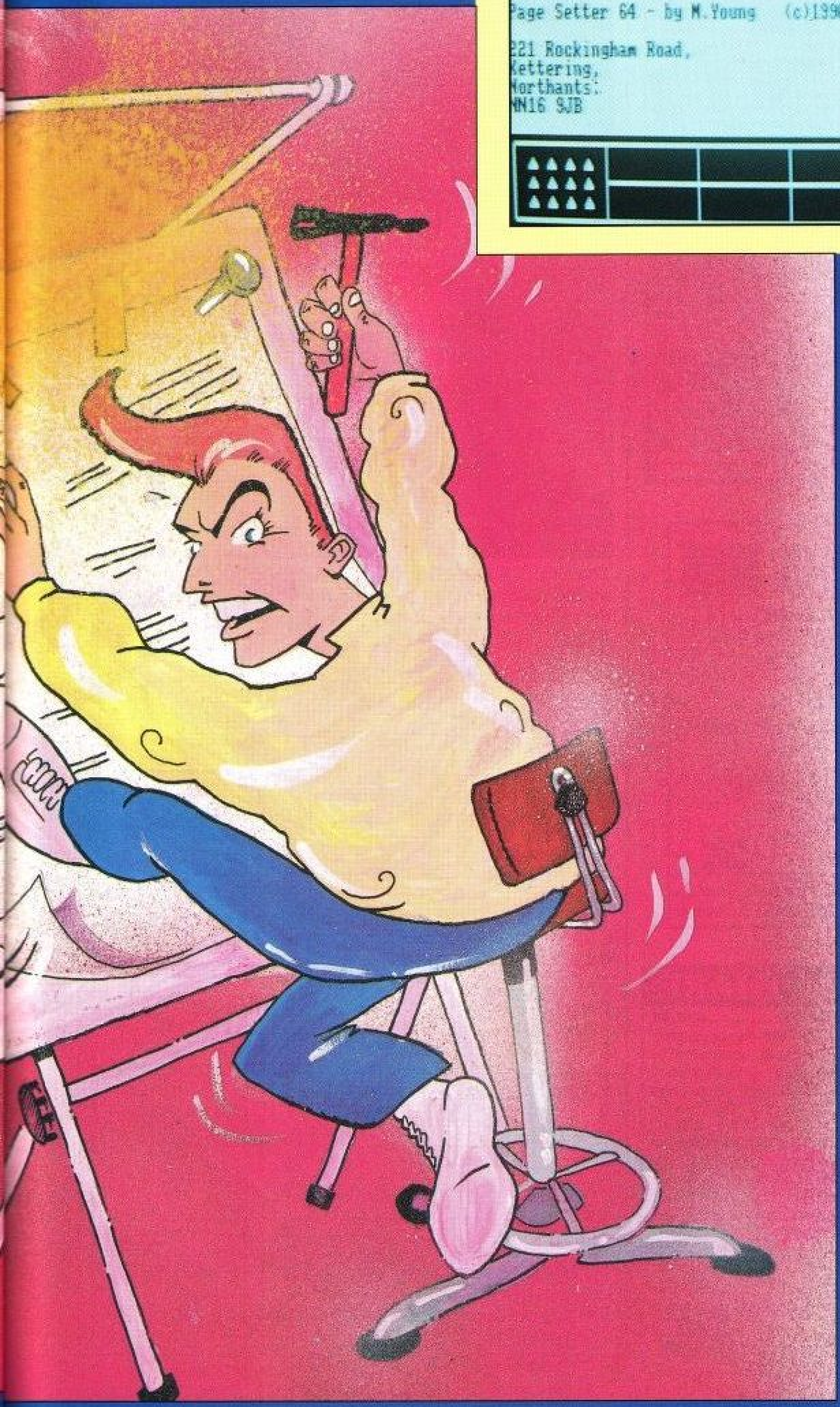
Each of the three program areas has an option for Extras. This option gives functions not able to fit in the other











menu categories. Depending on the program area in use, this option could allow the changing of border colour, the addition of one of 16 fill patterns, the sending of printer codes to the printer, or the sending of the current file direct to the printer.

From the original menu, users may select the option to load a library (LIB) file. There can be up to 8 in the memory at any one time and they can be used to load in such things as printer drivers. The Print option of Page Setter 64 was designed for use with the Amstrad DMP 9000 series but will operate with Epson compatible printers as standard. The standard printout will be A4 in size but can be reduced to half length and a third or two thirds width for proofing your work or publication of differing sizes. The print quality can be changed to give a high quality print if the user wishes to improve presentation. I would always use this on final print outs but speed draught will do for proof checking your work. The first and last lines of the page can be manipulated during this option and the printer can be instructed to inverse black and white from screen to printout.

At only £10.00 for tape or disk Page setter represents value for money the menus are well laid out though I would like to see some use of colour to brighten up the screen. The program is very workman like and not over user friendly though it does the job allowing you to produce news letters etc. without spending hundreds of pounds.

Yvonne Taylor

PAGE SETTER 64
Bit-7 Computer Software
Cost: £10 for disc or cassette

Back by popular demand for one more farewell gig, AJ explains how to clear off properly! (And with the appropriate amount of style!)

The Return of Auntie John



So there I was, happily whiling away the hours in suspended animation when the editor 'phoned me in a state of panic.

If you have ever met our illustrious editor you won't be very surprised by this, as he seems to be in a perpetual state of panic. Indeed, when he is not running around the place shouting, people get nervous.

"Quick, quick Auntie!" he said, "I need your help!"

"What, again?" said I. "Don't tell me: Nicola Hemming from Rainbow Arts is coming to visit and you want some hints on being cool."

"Not quite. I need you to do one more very last Auntie John's Machine Code Ever for me"

"Hmm, I don't know" I said. After all, it had taken a great effort to write the previous very last one ever.

"We'll pay you twice what me normally pay you!" he begged.

"What! Two Mars bars? Right – it's a deal."

"Great. Thanks AJ. Oh by the way, do you think I should wear sunglasses when she comes?"

So I fired up the word processor, and wrote one more Last Ever Auntie John's Machine Code. And here it is. Keep it to show your grandchildren: It's a one off special and you'll never see anything like it again. If you're lucky.

Since I'm about to clear off for a bit, what better to discuss than ways of making your computer clear off too. Well, clearing the screen display anyway.

The traditional way to clear the screen is to use the CLS command from BASIC. It certainly clears the screen, but it doesn't do it in a very spectacular way. One minute the screen is full of stuff, the next it's blank. Pretty boring actually.

What we need is something a little more showy. Something with a little class. We need the Auntie John's Screen Clearing program!

As a special Christmas pressie, I'm going to give you a collection of screen clears. They are all built into the long BASIC listing called "THE LONG BASIC LISTING". What this program does is Poke all the machine code instructions into memory and then perform a quick demo for you. First however, we'll need to examine the machine code routines needed to clear the screen.

The first routine is called "Blinds", because it sort of looks like a set of blinds closing on the screen. Well, it does to me anyway. Don't worry about it.

It works in a way which if you have been following the last few month's articles will be quite familiar. Yup, it pokes into the screen ram.

Now we know that as long as the screen hasn't been scrolled up or down that it starts at hex location &C000. In other words, if we did a quick POKE &C000,255 we would get a little line at the top left of the screen.

Now if we repeat the poke for the entire screen (all 16K of it!) and used different values each time we would get a nice pattern. Probably. Here's the listing, have a look.

```
;Blinds
            ld a,255            ;Colour3
            call blinds
            ld a,240
            call blinds         ;Colour 2
            call binds
            ld a,15             ;Colour 1
            call blinds
            ld a,0              ;Nothing!
            call blinds
            ret
.blinds
            ldhl,&C000          ;Start of screen memory.
            ld d,a              ;Keep a register 'cos we muck
.loop1      ld a,d              ;it up later.
            ld (hl),a           ;Do the POKE
            inc hl              ;Move to next location
            ld a,h              ;Check for end of screen by
            or 1                ;Checking if HL has got so big
            cp 0                ;it has passed FFFF and become
            jr nz,loop1         ;zero again.
            ret
```

The only tricky bit in the program is the final check to see if all the screen has been cleared. We could have used another register pair to count from &0000 to &4000 for us (remember: &4000 is 16K – the length of the screen). Instead we use a bit of cunning. Since the screen starts at &C000, the end of the screen will be &C000+&4000 which equals &0000. It actually equals &10000, but as we are dealing with register pairs which can only hold a maximum of &FFFF, the number 'clocks' to zero. All we have to do then is check to see if both registers in the HL pair are 0.

Time for more cunning. Instead of checking each one, we OR them together, which is a bit like adding them. If the answer is not zero, we know one of them ISN'T zero so we keep going. Otherwise, we return to BASIC.

The next clear screen routine doesn't have a name, because I'm not sure how to describe it. Best type it in and have a look yourself.

```
;Thingy
            RomOff EQU &b903
            RomOn EQU &b900

            call RomOff
            ld b,8
loop2:      call thingy
            djnz loop2
            call RomOn
            ret

.thingy
            ld hl,&c000        ;Start of screen memory.
.loop3      ld a,(hl)          ;Peek the value
            srl a              ;Change the value (divide it by 2)
            ld (hl), a         ;Do the POKE
            inc hl             ;Move to next location
            ld a,h             ;Check for end of screen by
            or 1               ;checking if HL has got so big
            cp 0               ;it has passed FFFF and become
            jr nz,loop3        ;zero again.
            ret
```

This one works by Peeking the screen value, dividing it by two and putting it back. Because our divide routine doesn't support decimal points or silly things like that, after any number has been halved eight times it is zero, and the screen is cleared.

Remember that because there is an operating system rom overlapping the screen ram, we must disable it before we can look at what is underneath. It's good manners to enable it again when we have finished.

Last routine is called "Static", because it makes the screen look like the static you get when you mistune a television set. Almost.

```
;Static
            ld b,8
loop4:      call static
            djnz loop2
            ret

.static
            ld hl,&c000        ;Start of screen memory
.loop5      ld a,r             ;Get a 'random' number
            ld (hl), a         ;Do the POKE
            inc hl             ;Move to next location
            ld a,h             ;Check for end of screen by
            or 1               ;checking if HL has got so big
            cp 0               ;it has passed FFFF and become
            jr nz,loop5        ;zero again.
            ret
```

The random number is obtained from the 'r' register. This little used register is not normally useful on the CPC. It is used by the Z80 processor when refreshing memory. As far as we are concerned it contains a number which we can't predict. When written to the screen, it looks like rubbish. Note that this routine cheats a bit and needs a proper CLS after it to remove all the garbage on the screen.

All these routines are merged into one big listing which anyone can type into their CPC (any version) and use from their BASIC program. Look at the BASIC demo bit to understand how to use them, and what addresses to call. Try using different screen modes!

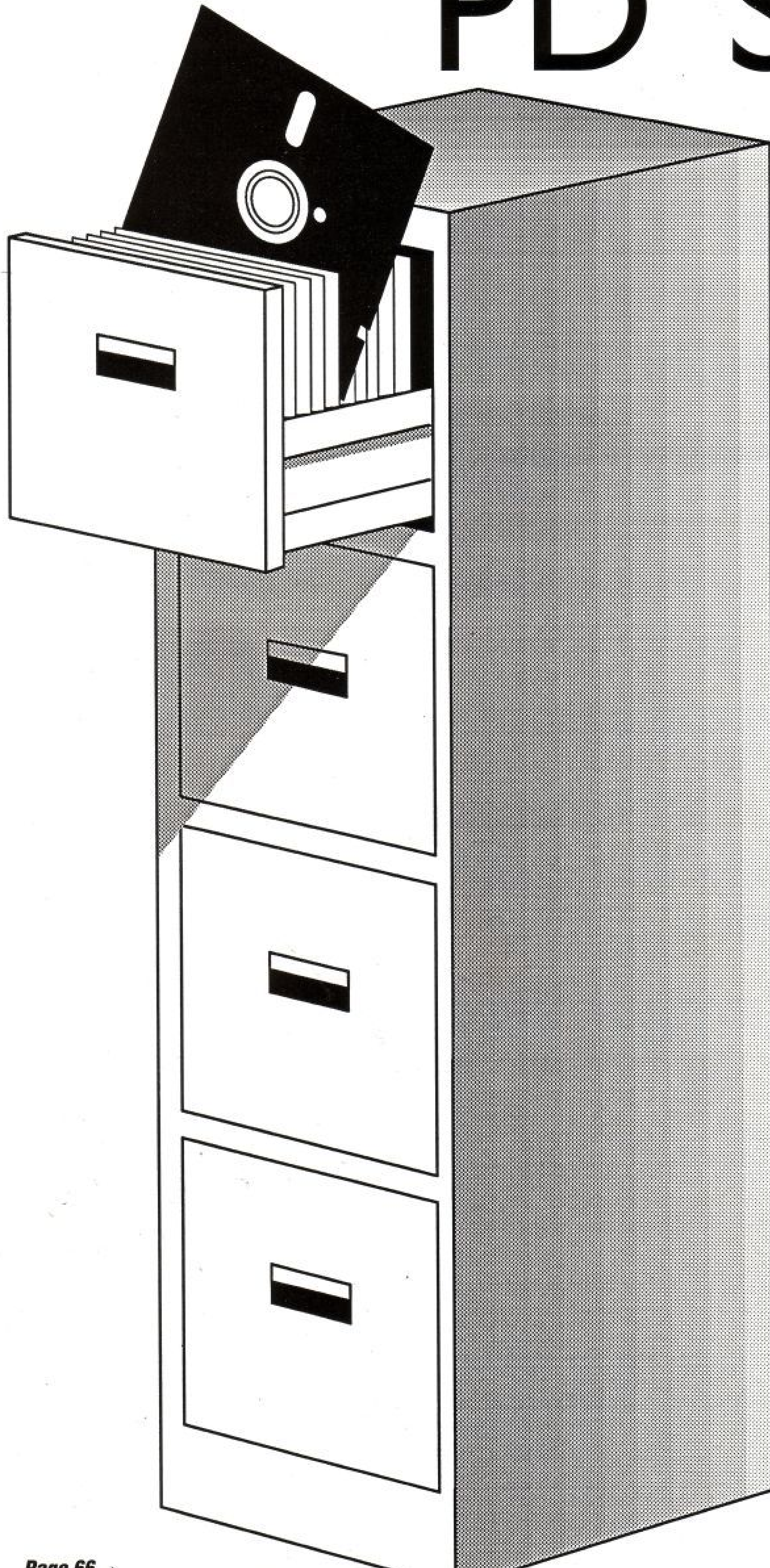
Right that's it! It's over! No more machine code! I'm off to take a well-deserved lie down while I work out what to do with myself. Suggestions care of the editor, please.

Have fun,
Your Auntie,
John.
XXX

THE LONG BASIC LISTING

```
10 REM DEMO PROGRAM FOR CLEAR OFF!
20 REM BY AUNTIE JOHN
100 MEMORY &7FFF
110 A=&8000
120 READ B$
130 IF B$="STOP" THEN GOTO 190
140 FOR C=1 TO LEN(B$) STEP 2
150D=VAL ("&"+MID$(B$,C,2))
160 POKE A,D
170 A=A+1
180 GOTO 120
190 MODE 1
200 GOSUB 500
205 REM THE FIRST CLEAR OFF
210 CALL &8000
215 REM THE SECOND CLEAR OFF
220 GOSUB 500
225 REM THE THIRD CLEAR OFF
230 CALL &8023
240 GOSUB 500
250 CALL &8040
260 CLS
270 END
500 FOR T=1 TO 100
520 MOVE INT (RND*640), INT (RND*320)
520 DRAW INT (RND*640), INT (RND*320)
530 NEXT T
900 REM THE MACHINE CODE – BE CAREFUL TYPING!
910 REM * SAVE BEFORE YOU RUN *
1000 DATA "3EFFCD15803EF0CD"
1010 DATA "15803E0FCD15803E"
1020 DATA "00CD1580C92100C0"
1030 DATA "577A77237CB5FE00"
1040 DATA "20F7C9CD03B90608"
1050 DATA "CD318010FBCD00B9"
1060 DATA "C92100C07ECB3F77"
1070 DATA "237CBFFE0020F5C9"
1080 DATA "0608CD488010FBC9"
1090 DATA "2100C0ED5F77237C"
1100 DATA "B5FE0020F6C90000"
1110 DATA "STOP"
```

PD Scene



More ado in the world of Public Domain. Paul Tint investigates...

I think most people would agree that the 'traditional' adventure has become almost obsolete in the the past few years. The major software houses have turned their attention to role playing adventures such as The Bards Tale and arcade adventures such as Total Eclipse. So, what do you do if you prefer the original adventures that started the ball rolling? Simple, you turn to the PD libraries.

There are a large number of such adventures available in the PD sector, ranging from the simple to the not-so-simple. Any PD library worth it's little cotton socks will have at least thirty, probably more. Here are just a few of the best adventures.

Doomlords

Doomlords is just one of the many adventures written by Simon Avery using the Quill.

In this adventure you play the part of Golovin, a fierce and noble warrior, who has been accused of 'looking at the chiefs daughter in the wrong way', and found guilty. Your sentence is to find the chiefs daughter (who has run away) or get tied to a spit and be roasted over a large fire. Being a sensible chap, you opt for the first choice.

Doomlords is in three parts which must be completed in order. The object of the first part is to leave your home village and enter the next village. This is not as easy as you might think (or it wouldn't be much of an adventure, would it?), but the puzzles are logically thought out and, after a lot of exploring, you begin to get somewhere.

Parts two and three are more difficult and I think I'll leave you to reach them. I don't want to spoil them for you, do I? (ahem).

Some of Simon's other creations include Firestone, Roog, Jungle Bunny, and the Adult adventure trilogy (Can I Cheat Death, Adult Two, and Boredom).

Dick Ed

Dick Ed is a text only GAC'ed adven-

ture in which you play the role of Edward Fulovit, a world famous detective.

Picture it: You're inside your office, twidling in your thumbs when, the phone rings. "Hello" you say in that deep voice you've been practising, "Right, I'm on my way". You put on your raincoat and Trilby (with the peak tilted, of course) and catch the subterranean lift down to a world inside your own. You finally come to rest and it's then you realise (being an ace detective) that you have absolutely no idea where you are!

With all of the above in mind, I had a feeling this adventure was going to be quite a challenge. I was not wrong!

My first attempt consisted of travelling along a road, finding a dead chicken, and being killed by a giant. My second attempt was just as pathetic; being killed after four moves doesn't rate much does it? Never mind, third time lucky. This time I actually managed to explore the area, but gave up when the mushroom refused to take my disk!

Dick Ed is a reasonable adventure, although perhaps presentation could have been improved by clearing the screen every time you move location (things tend to get cluttered up), but let's not complain. All things considered, it's worth getting.

The Secrets Of Ur

The secrets of UR is a Quilled text adventure by Bill Clews in which you have set out to find the truth about life, the universe, and all that.

The adventure starts in a plane flying over some mountains. Suddenly the engines start to fail and you have to grab your parachute and escape. This places you in the hot steamy jungle where the slightest mistake ends in death by just about every conceivable method. As you can imagine, this makes progress rather difficult however I'm told that it is possible to finish the adventure, just!

The secrets of UR scores highly in presentation, making good use of all four mode 1 colours. However, the constant death when exploring new areas becomes slightly tedious. However, if you keep at it, the adventure is quite enjoyable.

ACU PD?

I have recieved a letter from a guy called Julian Foster who is setting up a PD library at this very moment. Julian asks "Can I use the listings published in ACU in my PD library?". Good question Julian. The answer, after a long phone call to Chris Knight, is no, unfortunately, as the copyrights for the listings belong to the chappies who wrote them.

WHERE TO GO

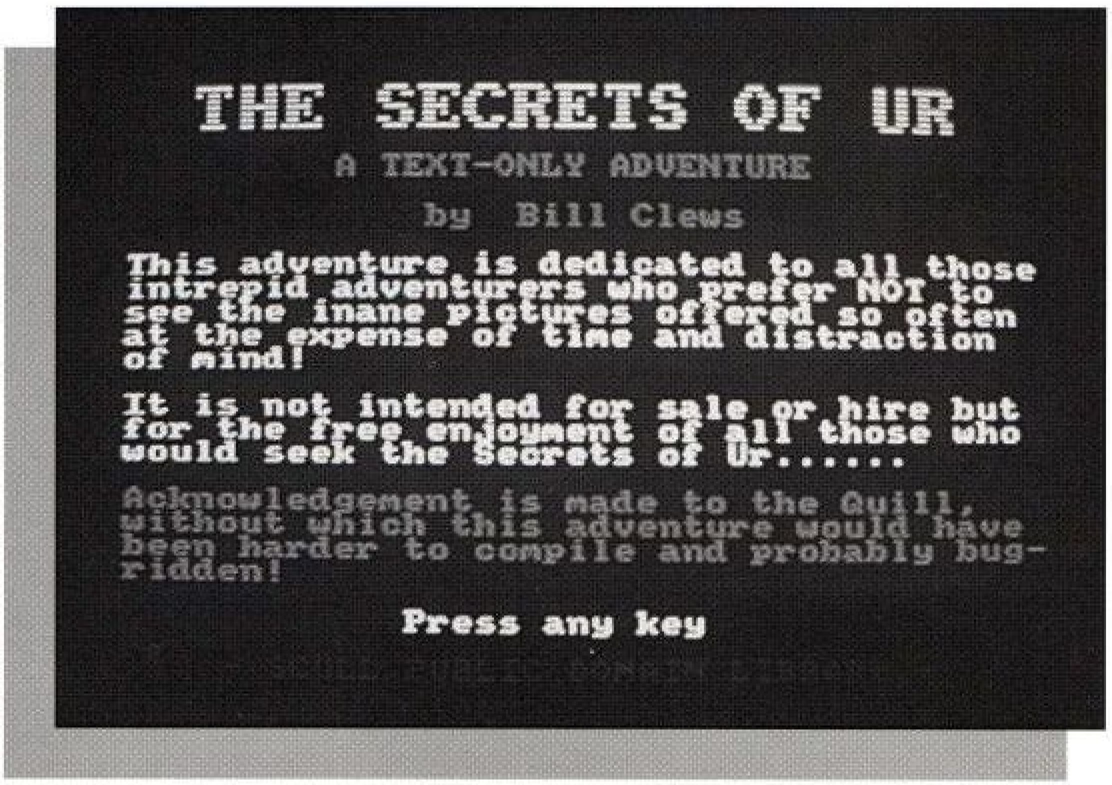
To get your hands on any of the above adventures then contact the following libraries:

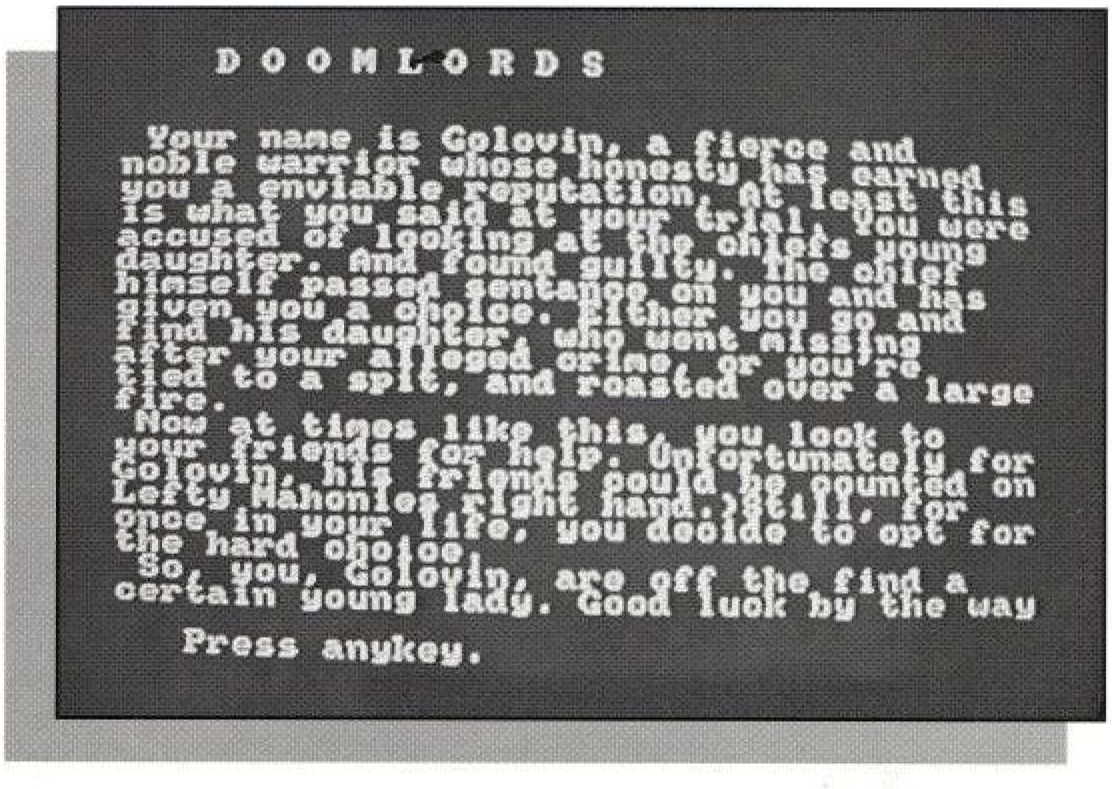
- Scull PD Library, 119 Laurel Drive, East Kilbride, Glasgow G75 9JG or phone Alan on 03552 24795. Send an SSAE for a copy of the concise stock list, or a disk and SSAE for a copy of the free Stock List Disk Magazine which also contains a free adventure. Prices are a fixed £1 per disk selection (one side of a disk) if you supply the disk [Disk only].
- Data PD Library, 202 Park Street Lane, Park Street, St Albans, Herts. Send an SSAE or 30p to recieve a copy of the Data Newsletter. Data supports both cassette and disk PD with the new price of 1p per K.
- Adventures PD, 10 Overton Road, Abbey Wood, London SE2 9SD. Send an SSAE for a copy of the catalogue. Prices are £1 per selection (one side of a disk), disks can be supplied at an extra cost (see catalogue for details).

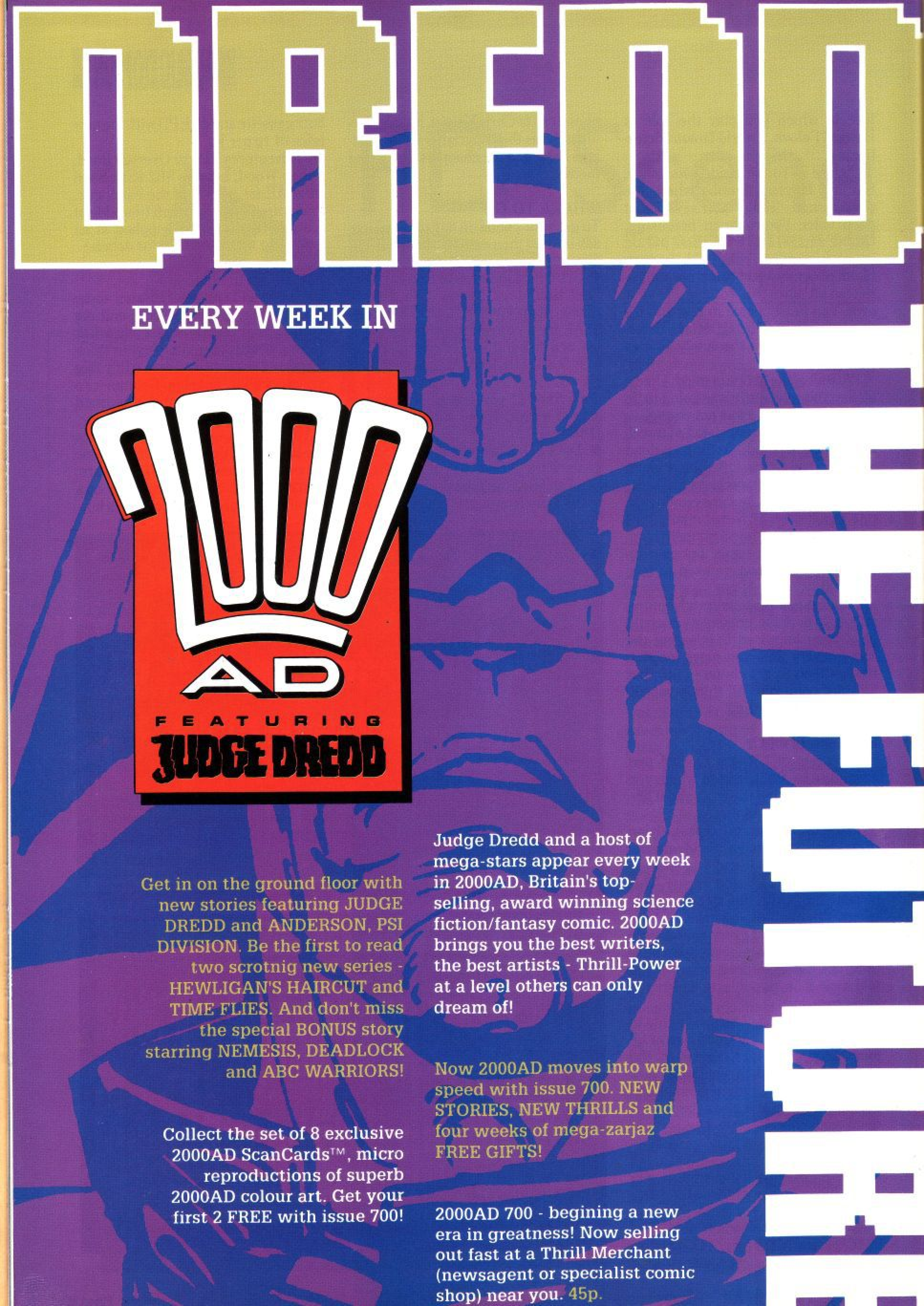
Get in touch!

If you run a PD library and want some free publicity then why not send me some of your software? Just pop a disk or cassette (disks prefered), your stock list and all relevant details in a Jiffy Bag to The Public Domain Column c/o ACU. If you want your disks returned then include an SSAE.

You don't have to run a PD library to get in touch either. If you have some general comments about PD software, or have praise or complaints about a certain library, then just drop me a line.






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Full Pitch

Ian Waugh investigates the ins and outs and ups and downs of the world of sound

Programming Scales and Pitches

The sound chip in the Amstrad can produce frequencies ranging from 31 to well over 10000 Herz. This covers a wide spectrum of sounds from a series of clicks at the lower end of the range up to notes even a piccolo can't produce. We can use this range to good effect and we'll be exploring the potential throughout the series.

We can program the sound chip to produce scales other than the one we normally associate with western music. Some scales can only be produced by a computer or a very expensive synthesiser and we'll take at look at these, too.

First, we'll see where the pitch numbers come from.

Calculating the pitch number

A list of pitch numbers is given in the CPC manual, which we refer you to. These cover the notes of our western scale over the eight octave range of the sound chip. We can simply use these values without more ado but for the curious and the more adventurous, we'll delve a little deeper into where these numbers come from.

If we know the frequency of the sound we require in herz, we can calculate the pitch number using the following formula:

```
pitch=ROUND(125000/hz)
```

There's nothing special about this formula from a music point of view, it's just the way the Amstrad's sound system works. It expresses the relationship between the number we put in the SOUND command (pitch) and the frequency (herz) which it plays.

To use these frequencies in a melodic context we must be able to produce specific pitches which have a musical relationship with each other. The most obvious example is our western scale. There are scales other than this and it is interesting to see how the western scale we now use came into being.

The scale of equal temperament

The notes we normally use in western music make up what is known as the equal tempered scale. This consists of octaves which are split into 12 equal intervals called tempered half tones - these are our normal semitones. The reason why the scale is called equal tempered is because, believe it or not, the notes have been squeezed (tempered with, perhaps) out of their more natural harmonic relationship to each other. Temperament is the process of reducing the number of tones per octave by altering the frequency of the tones from their more natural frequencies.

This talk of natural frequencies may sound a bit strange and what's this about 'reducing the number of tones per octave'? Surely there are 13 tones in an octave. Well, there are now but once there were more, 17 to be exact. Tones, that is, not notes.

The scale of just intonation

The most pleasing, that is harmonious, combination of tones is produced when frequencies have a simple mathematical relationship to each other. By simple I mean ratios such as 8:5 and 5:4, not 1.189207:1.

We can construct a scale based upon simple frequency intervals - ratios known as the harmonic series - and this will produce a scale of just intonation. Intonation is the process of selecting the tones of a scale with respect to frequency. A scale based on the harmonic series will produce notes which are more pleasing to the ear than those produced by a scale of equal temperament. It would seem natural, therefore, to use the most harmonious tones - the scale of just intonation.

Using frequency intervals based on the harmonic series produces three types of intervals - major tones, minor tones and semitones. (The names just distinguish one interval from another. In the scale of equal temperament a semitone _-_is_- a minor tone.)

To help clarify this a little, Figure 4.1 shows the ratios between the intervals in the scale of just intonation. It also shows the pitches which would be used in a scale of C major. The last column shows the ratio between adjacent notes of the scale: a major tone has a ratio of 9:8, a minor tone a ratio of 10:9 and a semitone a ratio of 16:15. So, for example, the ratio between C and D is 9:8 and between D and E, 10:9.

The out of tune scale

With a little study I hope you can see that using these ratios we can not construct any scale other than that of C. Try the scale of D. The first interval



we want is a major tone (D to E) which is expressed as a ratio of 9:8. We can see from the figure that the difference between D and E is 10:9, a minor tone. (This also leads to the situation where C# is a different pitch to D flat.)

Once you grasp that, you'll realise that in order to stay in tune instruments would be restricted to playing in one key. To play in another key a separate set of frequencies, based on the above ratios, would have to be used.

Although very harmonious, a more flexible method was required and so, quite simply, the octave was split into 12 equal intervals - the scale of equal temperament which we use today. J. S. Bach wrote a set of pieces called The Well Tempered Clavier which used the scale of equal temperament - he clearly saw a future for it.

If you want to experiment with the scale of just intonation here are the frequencies in herz of the scale of C in octave 0:

Note	Herz
C0	264
D0	297
E0	330
F0	352
G0	396
A0	440
0	495
C1	528

For completeness, here are the base frequencies of the other notes.

Key	Base FQ
C#0	278.4
Db0	278.1
Eb0	312.9
F#0	371.2
Gb0	370.8
Ab0	417.2
Bb0	469.3
Cb0	494.4

If all this seems a little confusing, don't worry. Throughout the series we will be producing music based on the equal tempered scale - the normal one - but as your knowledge of music increases you might like to come back to the concept of scales with different intervals. It's fascinating topic with plenty scope for exploration.

Calculating notes in the equal-tempered scale

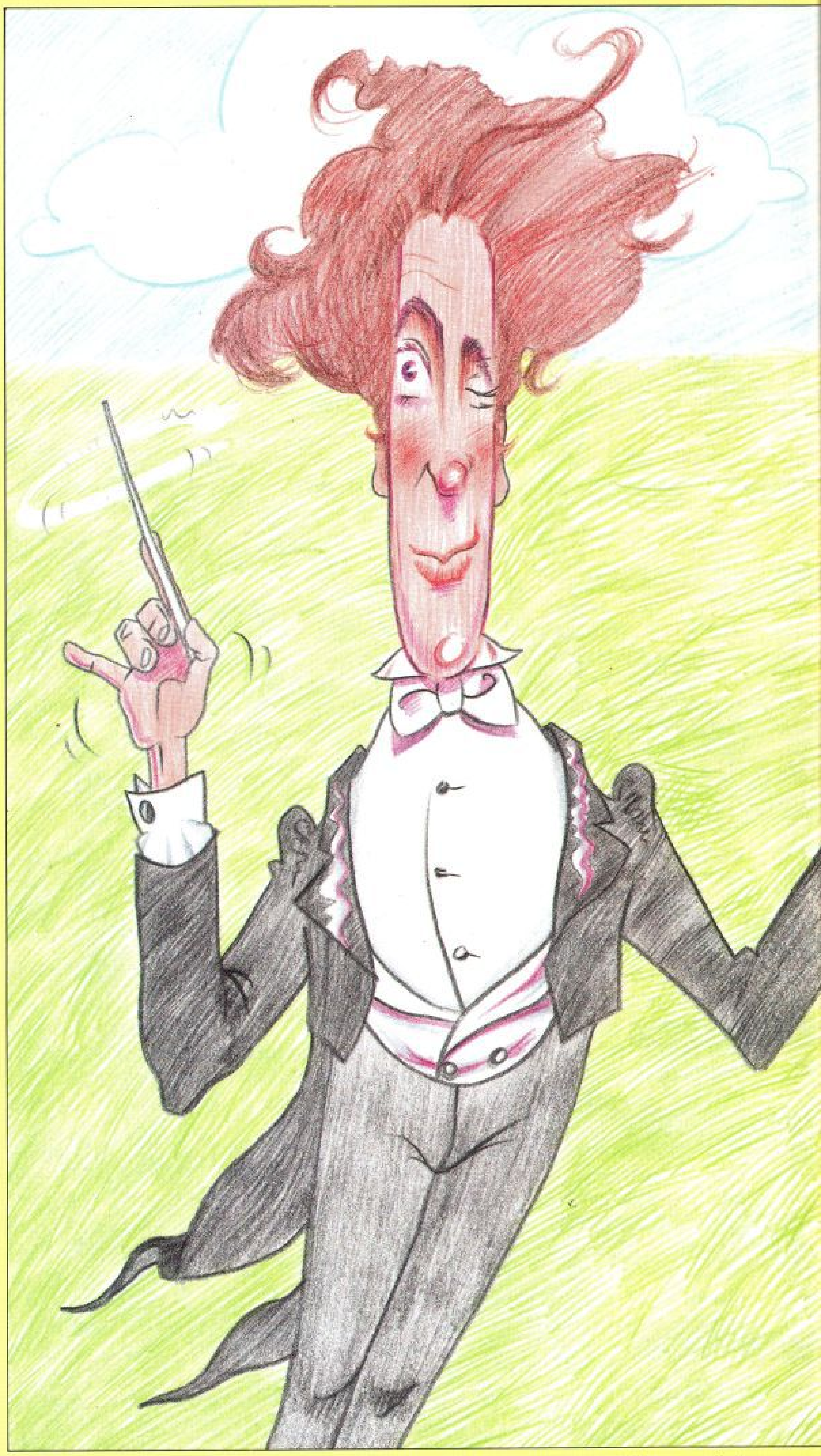
We can calculate the notes in the western scale using the following formulae:

```
freq=440*(2^(oct+(note-10)/12))
pitch=ROUND(125000/freq)
```

where freq is the frequency in herz, oct is the octave number and note is the note number, eg. 1=C, 2=C#, 3=D etc. This is how the figures in Appendix 1 were arrived at. Note that the FREQUENCY formula on Page 3 of Appendix VII in the User Guide uses the expression (10-N) instead of (N-10).

You can see from the formulae that the notes are first converted into herz and the frequency is calculated from International A. Even if you are not a musician in the strictest sense of the word you may have heard of this international tuning standard which stipulates a frequency of 440 Hz for A above middle C. This ensures that all instruments where ever they may be will sound the same pitch when they play the same note.

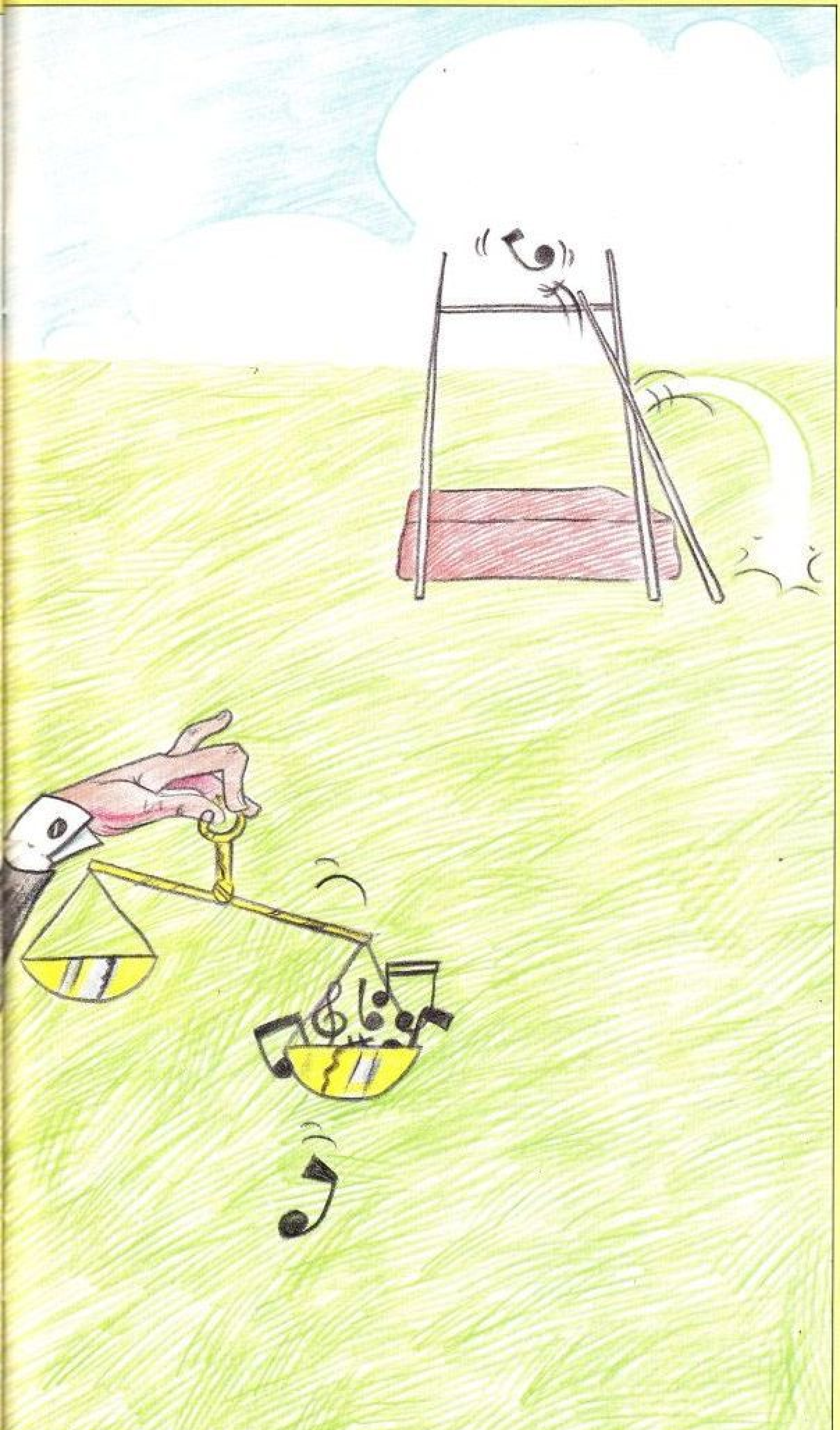
The formula is based on the fact that the frequency of each note in an octave is twice that of the note in the octave below it. You will also have noticed that as the frequency doubles, the pitch number halves. It seems rather contrary but as long as we remember this it shouldn't cause any problems.



Alternative octave and note numbers

The User Guide calls the octave beginning with middle C octave 0. Lower octaves, naturally, take minus numbers. This is a common method of numbering octaves but not the only one. We could, for example, call the lowest octave, octave 1 and work upwards using only positive numbers. We do not even need to number octaves at all, we could simply call C in octave -3 (using the User Guide notation) 1, the next note, C#, would be 2 and D would be 3, etc. C in octave 0 would therefore be 37. Another alternative would be to call C in octave 0, 1, higher notes taking positive numbers and lower notes negative ones. Also, to arrive at the frequency, we could base our calculations on a frequency other than International A.

If you're wondering what difference



any of this makes the answer is none. It's just a matter of convenience. I would rather write C3 to represent the C below middle C than C-1. Using positive numbers would make note to pitch conversion a little easier, too. If we are entering a lot of note data into the computer it is generally easier to enter a note name plus octave number than it is to enter the pitch number, ie C0 tells us more about the note than 478. It's also easier to analyse the string "C2" than "C-2" and it's only two-thirds as long. A note expressed in this way, ie note name plus octave number, can be split into these two parts for analysis. This is discussed in more detail later in the series.

Having said that, for the sake of conformity, in the larger programs in the series I have adhered to the User Guide's notation but I'll list here some formulae so you can use an alternative system if you prefer.

If you want to use positive octave numbers, you could use:

```
freq=15.43375*(2^(oct+note/12))
```

Using the above base frequency, B five octaves below middle C, we don't need to subtract an offset from note. A note value of 1 still represents C.

If you want to use the note numbers given earlier, then use this:

```
freq=30.8675*(2^(note/12))
```

As the note name (or number) doesn't need an octave we can omit oct from the formula. Although this is shorter, note data written as a list of numbers may be more difficult to understand. We could, of course, enter notes as note name plus octave number and instead of reducing this to a note and octave value, reduce it to a single note value. Musically, however, it's preferable to know the note name and the octave it belongs to so, again, I haven't used this method in any programs but please experiment.

The shape of music to come

When we speak of music we usually mean a sequence of notes and harmonies from the equal tempered scale. We have seen that other scales exist and how easy it is to produce them on the Amstrad.

Throughout the series we will concentrate on 'normal' music and conventional notation. This will produce sounds which most people will identify as music. After all, it has proved to be the most successful and common method of musical expression yet invented.

Many people, musicians included, are not aware that other scales exist. Details of these scales have been given because, as music continues to develop and the boundaries of acceptability are pushed back, other scales, microtonal ones in particular, will become more popular.

The Amstrad provides us with a unique opportunity to experiment with these scales and to produce music which surpasses the limits of accepted tonality. The rest is up to you, your imagination and ingenuity.

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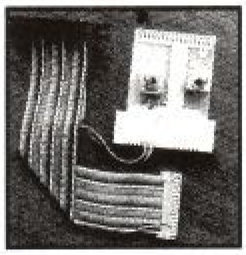
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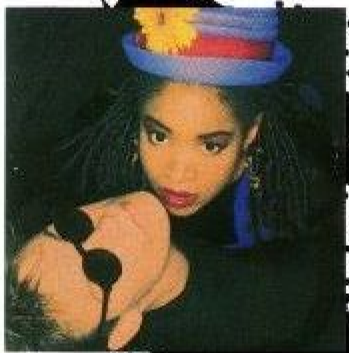
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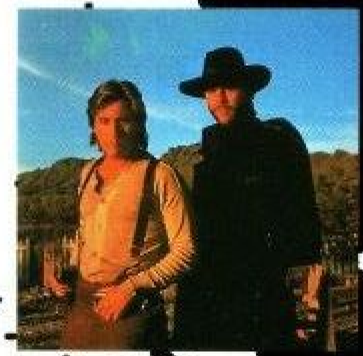
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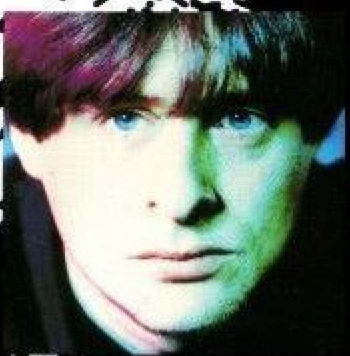
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